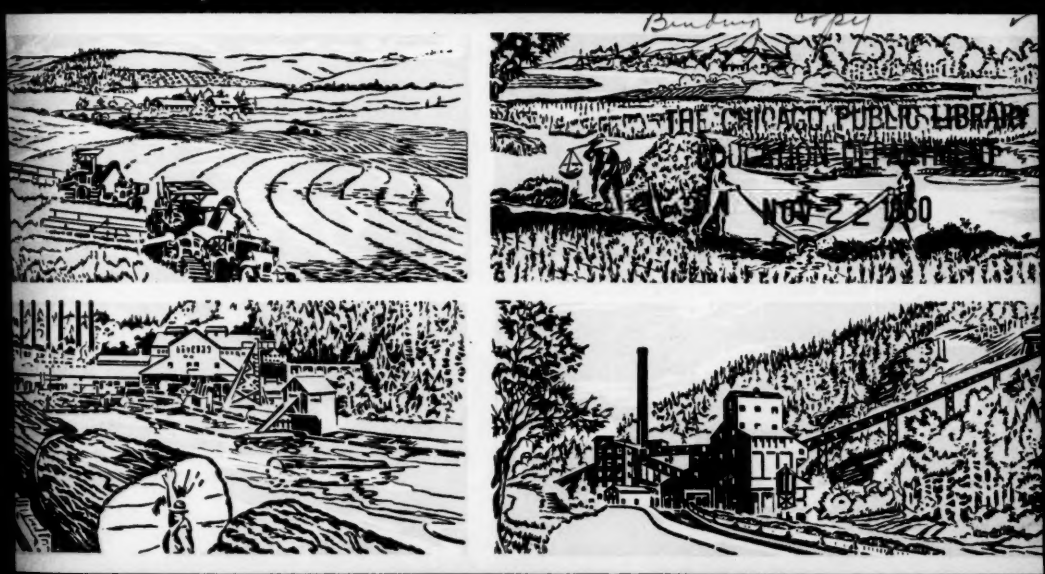
JOURNAL of GEOGRAPHY

for Teachers of
ELEMENTARY,
HIGH SCHOOL
and COLLEGE
GEOGRAPHY

Volume LIX
November, 1960
Number 8



THE CHICAGO PUBLIC LIBRARY
NOV 22 1960

PUBLISHED BY
A. J. NYSTROM & CO.
THE NATIONAL COUNCIL FOR GEOGRAPHIC EDUCATION
THOMAS FRANK BARTON EDITOR

THE WORLD OF PHYSICS

By Arthur Beser, New York University. 288 pages, $4.25, Cloth bound; $2.75, paper bound.

A broad collection of 15 relatively non-technical readings from world famous physicists of yesterday and today designed to communicate to the reader the excitement and adventure in the World of Physics. Various aspects of physics which are generally not included in textbooks are presented: historical, biographical, philosophical, its promise for the future. The physicists' view of physics as written by the leaders and innovators from Galileo to the Moderns.

THE WORLD OF GEOLOGY

Edited by L. Donald Leet, Harvard University, and Florence J. Leet. Ready in January, 1961.

A lively compilation of readings on geology for the general reader. The origin of the earth life the atmosphere; the ocean depths; the interior and exterior of the earth; the glacial movements; the formation of land features; and the construction of the earth are all discussed by specialists.

AFRICA: Its People and Their Culture History

By George P. Murdock, Yale University. 456 pages, Text Edition $8.75

An upper-division and first-year graduate textbook which covers the major developments of African cultural history since the end of Paleolithic times. The book surveys the indigenous cultures of the entire continent of Africa, and attempts to reconstruct the major movements of peoples and developments of culture that have occurred there since the first appearance of Neolithic agricultural civilization, around 5000 B.C.

Send for copies on approval

McGRAW-HILL BOOK COMPANY, INC.

330 West 42nd Street **New York 36, N.Y.**

Mention the JOURNAL—It Assures Service

Binding Copy
THE CHICAGO PUBLIC LIBRARY
EDUCATION DEPARTMENT
NOV 22 1960

The JOURNAL *of* GEOGRAPHY

CONTENTS FOR NOVEMBER, 1960

Articles

Harold W. Fairbanks, California Geographer. By William D. Pattison 351

Dr. Pattison, Assistant Professor, Department of Geography, University of California, Los Angeles, takes special interest in the history of geography, the teaching of geography and photography in the service of geography. He has served as instructor at University High School, University of Chicago, and as lecturer in geography at University College, London. He currently writes and lectures on the tradition of the professional travelogue in America.

Traffic on the Ohio River System. By Fred A. Carlson 357

Dr. Carlson, a professor of geography at The Ohio State University, is best known for his writings on Latin America.

A Teaching Unit on the Rectangular Land Survey. By Albert J. P. McCarthy and Maurice D. Randall 360

Mr. McCarthy, a lecturer, Indiana University is especially interested in historical geography. The courses he offers include Historical Geography of the United States and a course on the New World offered especially for teachers. Mr. Randall is chairman, Social Studies Department, Columbus, High School, Columbus, Indiana.

River Junction Communities of the Lower Ohio Valley—A Study of Functional Change. By Robert A. Harper 364

Dr. Harper, Professor of Geography and Chairman of the Department of Geography, Southern Illinois University, is co-author with C. W. Sorensen of a series of elementary textbooks used in the Karachi, Pakistan federal district. He is also a consultant to *Man in His World* elementary texts by Silver-Burdett Company.

Observations on the Goals and Methods of Regional Courses. By Vincent Miller 371

Mr. Miller, who has degrees from Muskingum College and The Pennsylvania State University, is now working toward the Ph.D. at Michigan State University. He has served as a Physical Geographer at the Quartermaster Research and Engineering Command, Natich, Massachusetts and as an instructor in geography, College of Wooster (1958-1960).

Elementary and Junior High School

Why Geography—To Help Me Choose A Career. By Daniel M. Even 378

Daniel M. Even, an eighth grade pupil studying under Mr. John A. Bonham, North Brandywine Junior High School, prepared this paper as a talk.

Using Maps in Teaching History. By Harriett Chace 380

Dr. Chace is General Supervisor of Elementary Schools in Union Number 16 (towns of Harwich and Chatham) Massachusetts. Her dissertation is entitled "Social Studies Skills in Elementary Schools." A series of articles on map skills appeared in *Social Education* during 1955 and 1956.

General

National Council at Work 385
Dr. Wallace R. McConnell. By Zoe A. Thralls 386
Geographic Materials Received 387-89
Book Reviews 389-90, 392, 394, 396

Contents of the JOURNAL are indexed regularly in the *Educational Index to Periodicals.*
Authors alone are responsible for opinions and statements in the JOURNAL.

PRINTED IN THE U.S.A.

The JOURNAL *of* GEOGRAPHY

THOMAS FRANK BARTON, *Editor*
GEORGE J. MILLER, *Assistant Editor*
Indiana University, Bloomington, Indiana

Associate Editors

EARL B. SHAW, Assumption College, Worcester, Mass.
NEVILLE V. SCARFE, University of British Columbia, Vancouver
R. S. FUNDERBURK, Central Washington College of Education, Ellensburg
MARY VIOLA PHILLIPS, University of Pittsburgh
JOHN W. MORRIS, University of Oklahoma
ZOE A. THRALLS, University of Pittsburgh
HENRY J. WARMAN, Clark University
CLYDE F. KOHN, University of Iowa
OTIS W. FREEMAN, Seattle, Washington
MAMIE L. ANDERZHON, William Beye School, Oak Park, Illinois
JEWELL PHELPS, George Peabody College for Teachers, Nashville, Tennessee

National Council for Geographic Education

JOHN W. MORRIS, *President*, University of Oklahoma, Norman
LORRIN G. KENNAMER, *Secretary*, University of Texas, Austin, Texas

---

SUBSCRIPTION TERMS

The subscription price is $5.00 a year payable in advance. The price of single copies is 60 cents. Postage prepaid on subscriptions from the United States and dependencies, Canada, and Mexico. All other countries in the Postal Union add for postage 45¢ on annual subscriptions (total $4.45), on single copies 5¢ (total 55¢). All subscriptions are payable in United States Dollars.

The JOURNAL is the official organ of the National Council for Geographic Education and is sent to all members. The annual dues, $4.00, are payable to the JOURNAL of Geography. Extra postage rates for copies sent to foreign countries should be added to the membership dues. Make all remittances payable to the JOURNAL OF GEOGRAPHY, in postal or express money orders or bank drafts. Send payments to Miss M. F. Sweeney, A. J. Nystrom and Company, 3333 Elston Avenue, Chicago 18.

Send manuscript and books for notice or review to the Editor.
Send orders for back numbers to JOURNAL OF GEOGRAPHY.

Published monthly except June, July and August
PUBLICATION OFFICES: CURTIS REED PLAZA, MENASHA, WISCONSIN
Business Correspondence, Membership Dues, and Subscriptions may be sent to

Publication office or to

A. J. NYSTROM AND COMPANY
PUBLISHERS, JOURNAL OF GEOGRAPHY
3333 ELSTON AVENUE, CHICAGO 18

Second-class postage paid at the Post Office at MENASHA, WISCONSIN, under the Act of March 3, 1879.

JOURNAL OF GEOGRAPHY PRIZE TO AUTHORS

Annually a Geographic Education Prize of $25.00 is awarded for outstanding articles published in the JOURNAL. In the even numbered years the prize is for the Elementary level and in the odd years for the High School level.

The JOURNAL *of* GEOGRAPHY

Copyright 1960, by the National Council for Geographic Education

VOLUME LIX NOVEMBER, 1960 NUMBER 8

HAROLD W. FAIRBANKS, CALIFORNIA GEOGRAPHER

WILLIAM D. PATTISON
University of California, Los Angeles

MANY GEOGRAPHIES have been written for the schools of particular states, but few are so deserving of general attention as the texts contributed by Harold W. Fairbanks (1860-1952) to the classrooms of California. Fairbanks, a geologist by training, never held a permanent appointment with an academic institution, and in later years his was such a private life that his death passed almost without notice.[1] Fortunately his writings and other records have been collected for preservation at the University of California, Los Angeles, and on the basis of them it has been possible to prepare the following paper in recognition of his work.

Fairbanks first came to know California in the spring of 1882, when, as a young school teacher forced to leave his employment by a failure of eyesight, he traveled to the neighborhood of Mt. Shasta from western New York State. Living with relatives on a newly opened farm, he adopted a life of riding, camping and hunting which gradually led to a redirection of his career. He became an amateur geological observer and collector, and when his sight improved, returned to the East for formal training, enrolling at the University of Michigan in 1885. By 1890 he was once again in California but this time with a bachelor of science degree, a job with the State Mining Bureau, and a California bride.

During the seven years following 1890, Fairbanks steadily developed a career of service to science and to his adopted state. He mapped the surface geology of the Mother Lode, reconnoitered the entire length of the Coast Ranges in California, prospected for petroleum in the Central Valley and examined all the important mineral deposits then known in California east of the Sierras. Traveling by horse and on foot (in the beginning with his young wife as assistant), Fairbanks made observations not only for Mining Bureau reports but also for more than 20 scientific papers which he published in various journals. He climaxed his record of accomplishment for this period with the preparation of (1) a folio for the U.S. Geological Survey on a part of the central Coast Ranges and (2) a study of a nearby coastal area as his doctoral thesis at the University of California.[2]

He was developing a direct acquaintance with the geography of California during these years which perhaps few other men could rival, and his life soon took a turn which allowed him to share widely the benefit of that acquaintance.

[1] A single, brief obituary appeared in *California Mining Journal*, XXII, 5 (January, 1953), 26.

[2] Fairbanks' Geological Survey contribution, long delayed in publication, was *San Luis Folio*, Folio No. 101 of *Geologic Atlas of the United States*, Washington, 1904; his thesis was published as *Geology of Point Sal* (Bulletin of the Department of Geology, University of California, Vol. 2, No. 1), Berkeley, 1896.

FIG. 1. Harold W. Fairbanks, Berkeley, California

Fairbanks in 1897 (Fig. 1) found himself confronted unexpectedly with official rejection of a conviction which had grown out of his work in the Coast Ranges, a hypothesis regarding the age and significance of a geological formation extending south of San Francisco Bay. With a wife and new-born daughter to support and a favorable reputation as a field worker to rely upon, Fairbanks countered this resistance to his ideas by abruptly altering the direction of his career and setting himself up in business as a private prospector and geological consultant, using his house in Berkeley, California, as operating base. The change left Fairbanks, as a writer, free to renew contact with children of the grammar grades, an audience he had not addressed for 15 years, and he soon composed for them a little volume titled, *Stories of Our Mother Earth*.[3]

This book, comprising both nature study and a fragmentary physical geography of California, opened the first phase of Fairbanks' career as an author of children's texts. During this period he continued his field explorations on behalf of various clients for coal, for metals and, with greatest success, for oil. To exploit his economic opportunities more fully, he organized the small Fairbanks Oil Company in 1907, and within a few years was prospering sufficiently to permit abandonment of further geological activity. In 1911, he set off with his wife and daughter upon a two-year trip around the world.

The second period of Fairbanks' textbook writing career began with his return to California and continued after a change of residence, within a few years, to southern California where he built a pleasant villa and took up the life of a gentleman of leisure. He was now out of the oil business but well sustained by investments which oil had made possible. Stimulated by contact with school geography while abroad, he interested a San Francisco publisher in a planned series of graded texts written for California children. By the time the first of these books appeared, he had already made related contributions in pamphlet and article form, including a prize-winning exercise on the Iberian Peninsula for California children.[4] The growth of his California series by the mid-1920's made him an author without rival in his special field. Before he was able to complete the series, however, a widespread change in American education began to affect California schools, graded geography fell from favor, and Fairbanks found himself facing a general loss of interest in his work. After the market crash of 1929 no more of his textbooks appeared.

[3] Harold W. Fairbanks, *Stories of Our Mother Earth*, Western Series of Readers, Vol. VI, San Francisco, Whitaker & Ray, 1899. In all further citations of Fairbank's work (below) his name as author will be omitted.

[4] "The Iberian Peninsula: A Geographic Study Adapted to Fifth or Sixth Grade Pupils," JOURNAL OF GEOGRAPHY, XIX, 5 (May, 1920), 165-171.

Early in the 1930's, having lost most of his income properties, Fairbanks moved his family into a small cottage and distributed to local schools nearly all of his mementos of travel, including collections from tours he had taken in the previous decade to South America and Southeast Asia. He soon returned to a part-time study and promotion of mineral claims, and after 1935, as a widower and a man knowingly isolated from the on-going enterprise of education, he pursued this interest with increased attention, even going into the field as health permitted. To the end of his life, in 1952, he cherished a vain hope that the mineral wealth of California would once again reward him to a degree commensurate with his understanding of it.

Provided with this life sketch the interested reader can develop a further appreciation of Fairbanks' significance by consulting his published work. Two aspects of his publications call for development here, however, for proper evaluation. They are his photography and his approach to geography teaching.

Fairbanks as Photographer

Fairbanks would be worthy of attention for his photographic work alone. In about 1895, after a few years of simply recording camp and field scenes of personal interest, he apparently first conceived a broad program of photography with the special object of furnishing illustrative material for the study of physical geography. By about ten years later he had produced a formidable collection of nearly 4,000 negatives representing all major regions of California and showing in addition scenes taken during out-of-state prospecting journeys, one of which had carried him as far north as Vancouver Island and another as far east as Nebraska. It may be that Fairbanks originally intended his negatives only for the production of lantern slides. In any event, he put them to this use for his own lecturing purposes as early as 1899, and a few years later published a slide catalogue offering more than 1,600 views for sale.[5] These admirable slides, printed, bound and labelled by Fairbanks and his wife, were sent out on mail order largely to schools and colleges in the Middle West and East, where many of them may still be found today.

Use of these photos for illustration of Fairbanks' publications began with his *Stories of 1899* and attained dominating importance with the appearance, in 1906, of his *Practical Physiography*, a volume into which the author packed over 300 of his carefully chosen views.[6] Between these photographs and associated citations of topographic sheets, the author succeeded in bringing California and the West into greater prominence than they have achieved in any other comparable book on physical geography. When Fairbanks resumed publication after his around-the-world trip, he was able to draw upon photos taken during that journey together with views purchased along the way, but the photographic interest of these later pictures generally failed to approach that of the illustrations which he continued to select from his pre-1910 supply.

Anyone going through Fairbanks' main body of photographic negatives today at the University of California, Los Angeles—photos dating from about 1895 to about 1907—is almost certain to be impressed by their pleasing composition, their great range of vantage point and the general illustrative aptness which they display (Fig. 2). The good taste in composition reflects an artistic impulse in Fairbanks which had led him in early life to take training at the Boston Normal Art School. The wide range

[5] *Catalogue of Lantern Slides Illustrating the Important Physiographic Features, Cultural Features and Important Forest Trees of the Cordilleran Region*, Berkeley, [1905?].

[6] *Practical Physiography*, Boston, Allyn and Bacon, 1906.

in his camera's point of view is attributable to both time and transportation, meaning that his were leisured expeditions (he and his family went on one traverse of the High Sierra lasting three months, for example), and that they were often undertaken without regard to existing roads. In some areas of low relief Fairbanks cycled across country, as the appearance of his bicycle in several photos attests; in mountainous terrain he relied upon horse and burro; and nearly everywhere he went he was prepared to increase the extent of his explorations on foot. As to illustrative usefulness, the viewer is necessarily struck by the constancy with which Fairbanks pursued this end. He produced hundreds of photos recording evidence of changing shorelines along the California coast. Many of his views show economic uses of various landforms. Most arresting of all his series are pictures taken along the full length of the San Andreas Fault, dating from both before and after the San Francisco earthquake of 1906.[7] It is difficult to avoid the conclusion that Fairbanks was once the most important geographic photographer on the West Coast.

Fairbanks as Teacher

Fairbanks was only briefly and infrequently a teacher in the usual sense. Although he lectured in a University of California extension series in the late 1890's and led a University summer field class into the High Sierra in 1908, it was not until 1917, and then for only a semester, that he held an appointment in Geography at that institution. His later teaching consisted of night lectures at the University of Southern California in 1918, demonstration lessons for various teacher's groups during the 1920's and, in parting, classes in the geography of California for summer students at the Los Angeles campus of the University of California in 1931 and 1933.

Fairbanks, of course, made his mark as a teacher through his publications. These fall into two periods. At the opening of the first period he saw as his subject matter local geology and physical geography, and he made his teaching intentions clear in the following words:

> Until recently no one has attempted to describe our home geography in such a way that the schools can make use of it. A vast amount of geological work has been done upon the Pacific Coast, but it has been mostly buried in technical papers which only specialists could read with profit. We have reached a point where we understand fairly well the meaning of the important physiographic features, and now our knowledge must be adapted to the use of teachers and pupils.[8]

In saying "until recently" he gave recognition to his own first school book, already cited, whose general content of nature study soon found a sequel in a primer titled *Home Geography*[9] and one of whose special themes, geology, was further developed in *Stories of Rocks and Minerals*.[10] Fairbanks went on to fulfill his statement of intention with a brief physiography of California for teachers in article form[11] and a full-scale high school text mentioned previously for its photographs, *Practical Physiography*. As many readers will fully appreciate, Fairbanks as an author of such works was not alone. Nature study was then in vogue, the land surfaces of several states were being analytically described at just this time, and high school texts in physiography were

[7] A few of these photos appear in "The Great Earthquake Rift of California," in David Starr Jordan (ed.), *The California Earthquake of 1906*, San Francisco, A. M. Robertson, 1907.

[8] "The Study of Physical Geography Upon the Pacific Coast," *Bulletin of the American Bureau of Geography*, I, 2 (June, 1900), 135.

[9] *Home Geography*, New York, Educational Publishing Company, 1903.

[10] *Stories of Rocks and Minerals for the Grammar Grades*, New York Educational Publishing Company, 1903.

[11] "The Physiography of California," *Bulletin of the American Bureau of Geography*, II, 3 (Sept., 1901), 232-252; II, 3 (December, 1901), 329-353.

FIG. 2. Morro Rock, coast of California north of Point Conception. This photograph, made in 1895, was intended by Fairbanks to show the kind of steep, rugged slope resulting from weathering of the igneous rock of which the butte is composed.

being brought out by a number of notable men in geology, including Davis, Shaler, Tarr and Salisbury. Fairbanks' writings were characteristic of the time, but, it should be noted, it was the educational leadership of the period which they typified.

In other publications of this first phase Fairbanks ventured into human geography and here again expressed a currently progressive point of view. For example, in 1903, in a California supplement to the Tarr and McMurry geographies, he made natural regions of the state a major basis of textual division.[12] In the next year he published a book which we can now recognize as belonging with the contemporary work of Brigham and Semple, a volume titled *The Western United States, A Geographical Reader,* in which he associated physical features of the mountainous West with important events of discovery and settlement.[13] At the end of this period, after he had departed for his trip around the world, a handbook to the geography of California appeared, in which he again took up the major regions of California, but with a degree of detail not earlier attempted.[14]

Entering the second phase of his writing for the schools, Fairbanks no longer primarily regarded himself as a geologist helping geography but as an educator specializing in geography. For a theoretical basis he turned to a definition of geography by Arnold Guyot and for practical examples of instruction he looked to Germany.[15] In German precedents he found justification for developing fully his preference for home and home-state orientation in geographic study, and he logically began his renewed authorship with exercises for the public schools of Berkeley, where he was still living, in 1916. Looking forward to expansion of his writing into a textbook series for statewide use, he laid plans which involved two distinctive teaching devices: the use of questions as a principal guide to textual content and the em-

[12] *California,* Supplemental Volume, Tarr and McMurry Geographies, New York, Macmillan, 1903.

[13] *The Western United States: A Geographical Reader,* New York, D.C. Heath, 1904.

[14] *The Geography of California,* San Francisco, Whitaker & Ray-Wiggin, 1912.

[15] "What Should Elementary School Geography Include and In What Order Should Its Material Be Presented?" JOURNAL OF GEOGRAPHY, XIII, 7 (March, 1915), 201-208.

ployment of a specially prepared school atlas.

His use of questions, first demonstrated in a series of pamphlets written for an eastern publisher,[16] emerged in 1921 as the dominating technique in his California textbook series. In that year he produced *The Home and Its Relation to the World,*[17] a few years later both *California*[18] and *California, the United States and the World,*[19] and in three successive later years books on Europe, South America and North America, respectively, from a Californian's point of view.[20] Since questions took the lead in organizing all parts of these works, Fairbanks, as might be expected, soon became an embattled defender of his method. In an outspoken book of 1927 mainly written to justify his question-and-answer enthusiasm, he made it clear that his questions required more than knowledge of geographic facts.[21] He went further, claiming that his careful mixing of full answers, partial answers and materials out of which answers could be fashioned led to that thoughtfulness of which school geography had long stood in need.

The school atlas planned by Fairbanks unfortunately was never produced, due to costs. It would have been devoted principally to original maps exhibiting the physical and cultural geography of California, both as a whole and in selected parts. To judge by one three-color map printed separately as an advance sheet, it would have been about the same page size as *Goode's School Atlas.* Publication of the Goode atlas in 1923, it should be observed, at least partly filled the need which Fairbanks had intended to meet.

Toward the end of the 1920's, the sale of Fairbanks' texts began to decline sharply as already suggested. Three fundamental failures were expressed in the downward trend. First, Fairbanks' single-handedness in the production of texts, characterized by a highly personal approach including his question-and-answer method, had failed to gain what could be called popularity among teachers. Second, the emphatically rural outlook of Fairbanks' work, represented by a strong attachment to agriculture and the "country home," had failed to change with the increasing urbanization of the United States and, in particular, California. Third, Fairbanks' underlying aim of acquainting school children with the role of the natural environment in human life had lost its appeal. This major educational purpose, which had attracted widespread attention at the turn of the century, was now going into an eclipse caused by a rising conviction among educators of the primary importance of the social environment.

Fairbanks, though aware of his predicament, refused to accept defeat. Without waiting to complete his text-series with books on the remaining continents, he turned hopefully to the local school market of his new home area of southern California and composed a beginning geography on that region.[22] By the time of publication of his final text-

[16] *Topical Outlines of Geography,* Philadelphia, P. Blackiston's, 1921.

[17] *The Home and Its Relation to the World,* New Progressive Geographies, San Francisco, Harr Wagner, 1921.

[18] *California,* New Progressive Geographies, San Francisco, Harr Wagner, 1923.

[19] *California, the United States and the World from the Point of View of California Children,* San Francisco, Harr Wagner, 1923.

[20] *Europe* (1925), *South America* (1926), *North America* (1927), Vols. III, II and I, respectively, of New Progressive Series of Geographies, San Francisco, Harr Wagner.

[21] *Real Geography and its Place In the Schools,* San Francisco, Harr Wagner, 1927. In this book and elsewhere Fairbanks called his question-and-answer procedure "the problem method."

[22] *Southern California, the Land and Its People: A Reader for Beginners in Geography,* San Francisco, Harr Wagner, 1929. For an earlier version of parts of this book, see "The Geography of Southern California, A Study for Teachers," JOURNAL OF GEOGRAPHY, XX, 8 (November, 1921), 281-293.

book, in which he held fast to his accustomed outlook, he had launched an attack in two JOURNAL articles against competing points of view.[23] He particularly deplored the influence of the Harold Rugg social science pamphlets, which were leading the way toward the unification of geography, history and civics, and in doing so he denied both the primacy of the social over the physical environment and the suitability of city life as a geographic subject. The Rugg pamphlets soon lost their initial popularity, but the movement which they represented eventually prevailed, as is well known, no less in California than elsewhere in the United States. Fairbanks' resistance was of no avail.

[23] "Can the Educational Value of Real Geography in the Junior High School be Replaced by Any Other Subject or Combination of Subjects?" JOURNAL OF GEOGRAPHY, XXVI, 8 (November, 1927), 287-293, and "Industrialized Geography," JOURNAL OF GEOGRAPHY, XXVIII, 5 (May, 1929), 202-211.

By the late 1930's Fairbanks' texts, including his reader on southern California, had become no more than occasionally used reference books in the schools, and he was finding it impossible to interest any publisher in a new compendious geography of California which he had written for teachers and the general reader. He had the satisfaction, however, of making one more contribution. In 1938 he had a hand in bringing out a wall map of California with natural environment insets for which he wrote an accompanying instructional brochure.[24] The wall map and booklet allowed Fairbanks to realize in part his dream of a California atlas, and they served to remind the educational world that his had once been the most important name in California school geography.

[24] *A Topographic, Climatic and Regional Study of California Based on the Fairbanks Natural Environment Maps,* Chicago, A. J. Nystrom, 1938.

TRAFFIC ON THE OHIO RIVER SYSTEM

FRED A. CARLSON
The Ohio State University

THE OHIO RIVER navigation system is one of the world's great inland waterways. Annually, more than 135 million tons of traffic move over its waters, a volume greater than the tonnage on the Mississippi River. Its navigable streams total about 2700 miles, of which some 2200 miles have a minimum channel depth of nine feet. Since 1950, 15 billion dollars has been spent for new and improved plants along the Ohio River and its tributaries. Within its drainage basin, an area of 261,500 square miles, the population is estimated at 20 million. The development of the area, through modernization and expansion of industrialization and transportation facilities, continues at an increasing rate of progress.

The Ohio River

On the main stem of the system, the Ohio River, a navigable distance of 981 miles, Pittsburgh-Cairo, the volume of traffic increased from 43 million tons in 1948 to 73 million tons in 1958, with an all time high of 82 million tons in 1957. Coal, petroleum and products, iron and steel, and industrial chemicals are among the leading commodities transported on the Ohio River. Coal ranks first on the basis of tonnage whereas petroleum and products have the greatest ton-miles. A significant trend in re-

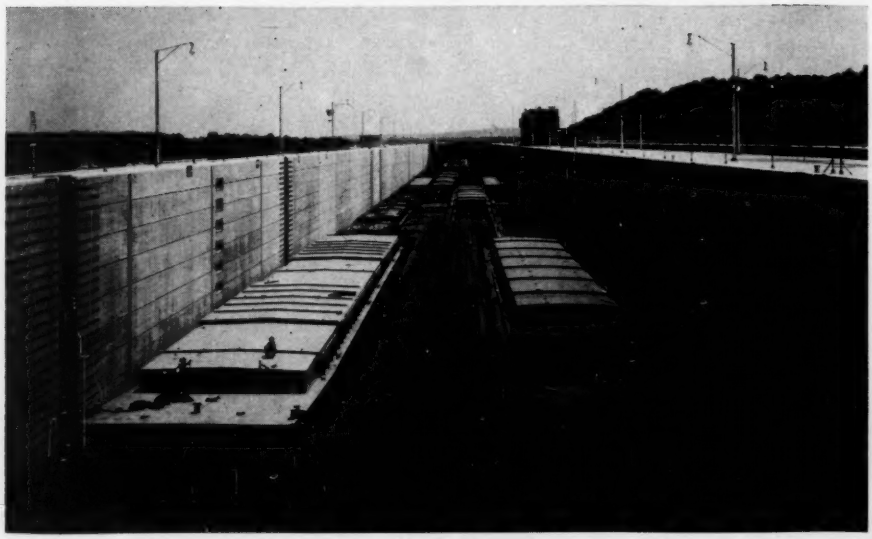


FIG. 1. A tow in new 1200 ft. Markland Lock. This new lock replaces old 600 ft. lock No. 39. (Courtesy, Corps of Engineers, U. S. Army)

cent years is the increase in cargo of high unit value, such as industrial chemicals and manufactures.

Notable improvements in navigation facilities on the Ohio River are in progress. The master plan calls for a reduction of the number of dams and locks from 46 to 19. The new structures will consist of a gate controlled dam and dual locks. Six major projects are under construction: the New Cumberland, the Pike Island, the Greenup, the Anthony Meldahl, the Markland, and McAlpine at Louisville, Kentucky. At present the work on the Markland, Greenup, and New Cumberland dams and locks has advanced to the stage where traffic can pass through the river lock chambers (Fig. 1).

By increasing the length of the pools through this reduction in dams and locks, considerable time will be saved by the carriers. For example, the Markland project will replace five former dams and locks with a pool length of about 95 miles, compared to the present average of less than 20 miles between locks. For a large tow with a speed of 7.5 miles per hour, the time to traverse this section will be reduced from 20 hours to 13 hours, including allowance for passage through the Markland Locks.

Ohio River Tributaries

The emphasis placed on the commercial importance of the Ohio River needs no qualification. However, its greatness must be considered in relation to its tributaries or "contributories"—the Tennessee, the Cumberland, the Green, the Kentucky, the Big Sandy, the Kanawha —and the so-called headstreams—the Monongahela and the Allegheny. The total mileage of these streams with a navigable channel of 9 feet or more is some 1340 miles, compared to 981 miles of the Ohio River. In volume of traffic, the tributaries compare favorably with the Ohio River, carrying, respectively, 61 million tons to 73 million tons. The tributaries contribute about 32 per cent of the total Ohio River traffic and some

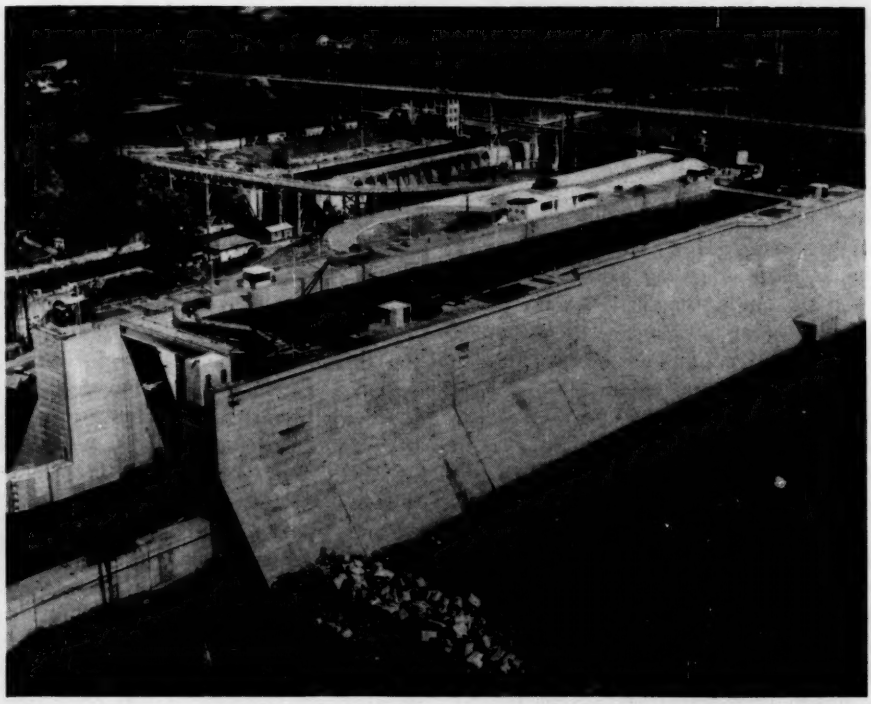


FIG. 2. New Wilson Dam Lock. TVA has built a navigation lock at the Wilson Dam in north Alabama, which has the world's highest single lift, 100 feet. The Wilson Dam is in a section of the Tennessee River where in earlier times a reach of shoals and rapids severely hampered and at times prevented navigation. (Courtesy, Corps of Engineers, U. S. Army.)

53 per cent of its volume of coal. In fact, the coal shipments on the tributaries in 1958 amounted to 41 million tons, compared to 37 million tons moved on the Ohio River.

One of the really great tributaries of the Ohio River is the Tennessee River. Its commercial position has been somewhat overshadowed by the Tennessee Valley Authority development of power plants and flood control dams. Over the 648 miles of its course having a minimum channel depth of nine feet from Knoxville, Tennessee, in the mountains, to its confluence with the Ohio River at Paducah, Kentucky, the barge traffic in 1958 exceeded 12 million tons, including shipments of coal, grains, petroleum products, steel and industrial chemicals (Fig. 2). The coal traffic totalled 5 million tons of which three million tons moved upriver to TVA steam-electric plants. A distinct feature of the navigation facilities on the Tennessee River is the length of the pools between the dams. Throughout its length of 648 miles there are only nine locks and dams, and pools range in length from 184 miles to 15 miles.

Traffic on each of the tributaries of the Ohio River can be identified by one or more characteristics. The Cumberland River cargo includes little or no coal. Its composition consists, primarily, of motor fuel and other petroleum products, metals, manufactures and industrial chemicals. Practically all of the traffic on the Green River is coal on route to

steam-electric plants on the banks of the Ohio River. Coal and gasoline are primary commercial products on the Kentucky River. This coal is confined to local movement since none of it reaches the Ohio River. It is brought from the mines to the terminal near Beattyville, Kentucky, and is then transported to a power plant near Ford, Kentucky, a distance of 76 miles. The locks and dams in the Big Sandy, the Little Kanawha and the Muskingum Rivers are no longer operated or maintained by the Corps of Engineers, United States Army. The Muskingum facilities were turned over to the State of Ohio, Department of Natural Resources, on November 24, 1958. An American corporation and state governments will acquire the structures on the Big Sandy and Little Kanawha. The Kanawha River is an active waterway with full operation and maintenance for its navigable distance of 90 miles. In addition to its coal and petroleum cargo, industrial chemicals constitute a major group of commodities transported on the Kanawha. Approximately one-half of the total coal traffic on the Ohio River tributaries moves over the waters of the Monongahela. It also contributes about one fourth of the coal traffic on the Ohio River. Its companion, the Allegheny, also is know for its cargo of coal.

Future Prospects

The Ohio River System serves an area for which it has been predicted that manufacturing will more than double its present rate of development in the next 20 years and that the population will increase some 20 per cent within these two decades. Projects now underway to improve the water transportation facilities will care for about one-third of the system's present needs. However, full modernization of the waterways to meet the increasing demands will be necessary by 1980. There is not only the need for the improvement of the navigable streams but also for a betterment of tows in order to achieve greater size, and speed and better techniques in navigation.

This increasing vitalization of the Ohio River System is reflected in the national development of inland waterways. In the past two decades the freight traffic on the nation's inland waterways has increased from 22 billion ton-miles to more than 110 billion ton-miles, a rise from 3.6 to about 9.0 per cent of the total freight traffic of the United States.

A TEACHING UNIT ON THE RECTANGULAR LAND SURVEY

ALBERT J. P. McCARTHY
Indiana University

MAURICE D. RANDALL
Columbus High School, Columbus, Indiana

SYSTEMS OF LAND SURVEY, expressed through their influence on the location and orientation of roads, fences, fields and buildings, certainly are among the most widespread cultural patterns in the world. Furthermore, they exercise considerable influence on the lives of those who live within them by their relation to systems of landholding, field patterns, land use, and settlement.

The most extensive of these systems are the rectangular land surveys of North America, which not only include 29 continguous states of the United States, but also cover the three adjacent Prairie Provinces of Canada with a sys-

tem which is the same in all its major aspects. The influence which such a survey exerts on cultural patterns is especially strong when the system is established prior to dense settlement of the area, as it was in the United States and Canada. Because of its importance to both geography and history, we believe that a unit on the rectangular survey is valuable in American Schools, especially in those areas included in the survey.

This unit is designed for use in the junior high school with the exact grade level to depend on local circumstances. It includes subject matter from geography, history and government, and it offers a good chance for coordination with the mathematics course. The purpose of the unit is the organization and utilization of content from various curriculum areas which will help pupils to understand better, within the framework of their own community, the implications of a historical action. The subject provides opportunities for activities which will tend to enrich the pupils' experience and their knowledge of their community.

Desired Outcomes

As a result of this unit the student should attain:

I. A knowledge of subject matter including:
   - A. National geography, history and government and their relation to his locality,
   - B. History and geography at county and township levels, and
   - C. Improved vocabulary through the learning of new words, their meanings and spelling;

II. Specific skills, such as:
   - A. Reading and interpreting maps,
   - B. Making simple maps,
   - C. Using reference materials such as encyclopedias, atlases and gazetteers,
   - D. Observing and note-taking, and
   - E. Presenting reports to the class;

III. An appreciation of:
   - A. Man's effect upon his environment,
   - B. The many ways the township and range system has influenced our culture,
   - C. The relation of the land acts to the settlement of the country, and
   - D. The relation of the land acts and the rectangular survey to American education.

Subject Matter of the Unit

The unit can be introduced with a study of the Land Act of 1785,[1] which established the rectangular survey, and other pertinent legislation such as the Northwest Ordinance of 1787 and the Land Act of 1796. Teachers can emphasize whatever aspects were of greatest significance locally. For instance, the principle of reserving one section in each township for educational purposes and the way it was applied in the local township illustrate the operation of a national law in the students' home area.

The basic material of the unit is the survey grid with its east-west base lines and north-south meridians, and the townships and ranges based on them. While there is hardly any visible evidence of the survey itself, the dominant pattern of man's works over hundreds of thousands of square miles is one of lines and rectangles aligned with the four cardinal points of the compass. The uniformity of the pattern over such large areas is partly a result of the essential flatness of central North America; the degree to which the pattern de-

[1] Louis M. Hacker, *The Shaping of American Tradition*, Columbia University Press, New York, 1947, pp. 220-223.

parts from, or adheres to, the survey in more rugged areas is also of interest. The density of the pattern varies according to the land use and the type of economy. Farms and fields are bigger, and roads, fences, and farmsteads are farther apart in the West than they are in the East. From their experience and observation and from the study of maps, the class can make a list of the features which comprise this pattern.

Land-ownership is probably the basic factor, since the original land acts provided for the disposal of the public lands in units of sections and parts of sections. The original holdings have been subdivided or combined for various reasons, but farm shapes today are still a part of the rectangular pattern. Students enjoy identifying their own property in a plat book and locating it on a topographic sheet. Field patterns and fence lines break down the farm into smaller rectangles, and plowing and sowing add detail to the east-west, north-south texture.

The road network is another primary element closely oriented to the rectangular survey, and it in turn effects the location of many other phenomena. Topographic maps show a close network of minor roads, as well as many major highways, following township and section lines.

Inspection of the topographic map will reveal the distribution of houses around the edges of the sections, and farmsteads frequently reproduce the pattern in miniature, with buildings and pens erected at right angles to one another or to the road. Telephone and electric lines closely parallel the roads, and even drainage and irrigation ditches often parallel field boundaries.

Even vegetation corresponds to the common pattern. In farming regions which previously were forested, clearing began at the roads, and rectangular woodlots are left in the centers of the sections.[2] These, incidentally, show up very well on the new U.S.G.S. topographic series with vegetation symbolized in green. In grasslands, groves have been planted around many of the farmsteads, close to the roads.[3]

Reforestation is usually done within the framework of the prevailing field system, and the familiar plantations of locust formerly used for fence-posts parallel the farmsteads. When windbreaks are planted, they follow field boundaries.

In urban settlements the survey is reflected in the grid of streets, the public square, and real estate divisions, and in the country the distribution of many phenomena such as churches, cheese factories, crossroads, hamlets and one-room schools is closely tied to the road pattern.

The exceptions are frequently interesting and some may serve to bring out points of history. High voltage transmission lines aren't usually lined up with the grid; railroads may or may not parallel the roads; main roads sometimes follow Indian or pioneer trails; main drainage and irrigation ditches have to follow the slope; and towns often are oriented to rivers or railroads.

The influence of the rectangular survey on the cultural landscape becomes most apparent when it is contrasted with areas under other systems of survey such as metes and bounds. The eastern states have this system because the land was privately owned prior to 1785. The township and range system doesn't cover Texas because it was settled before it became United States territory.

Suggested Activities

Rural children and children with access to rural areas will have more direct experience with the material of the

[2] Preston E. James, *A Geography of Man*, Ginn and Company, Boston, 1949, p. 294
[3] Ibid., p. 295

unit, while those from urban areas will be more dependent on maps and plat books. For the latter especially, a valuable activity might be a field trip through the country and a visit to a farm to observe the effects of the rectangular survey in the landscape and to make notes. The county surveyor's office might also be the object of an excursion.

A diagram of a six-mile square township divided into mile-square sections properly numbered should be drawn on the chalk board, preferably by a pupil. A diagram of a section, on a larger scale, should also be put on the board, with the quarter sections and the square forty-acre tracts within each quarter designated by their compass positions.

A grid of squares can be duplicated and passed out to the students on which they can draw: a plan of a township, a plan of a section, a map of an actual section with farm boundaries and roads, the field pattern of a farm, or the plan of a farmstead. The class can arrange a bulletin board with maps, plans, pictures, and other materials illustrating the rectangular survey and its effects.

A worksheet or questionnaire can be used to direct students' map work and observation in the field by questions such as:

What direction does your house face?
How big is your farm (or one you know)?
Can you locate a one-room school? a rural church? a cheese factory?
What is the number of the section in which you live?
Can you locate a road called "the town-line road"?

Teaching Aids

The following aids will prove useful: (1) a physical-political map of North America, (2) a large map of the state or province, (3) topographic maps at 1:65,000 or larger, (4) plastic relief models where available, (5) aerial photographs, and (6) county histories, atlases, gazetteers, and plat books.

Selected Bibliography for Teachers

Pattison, William D., *Beginnings of the American Rectangular Land Survey System, 1784-1800,* University of Chicago, Department of Geography Research Paper No. 50.

Finch and Trewartha, *Elements of Geography,* Appendix C, "American Systems of Land Survey," McGraw-Hill, 1957.

Buley, R. Carlyle, *The Old Northwest,* Vol. 1, Chap. 3.

Putnam, D. F., et al, *Canadian Regions,* J. M. Dent and Sons, Ltd., Toronto, 1952, pp. 371-372.

Hacker, Louis M., *The Shaping of American Tradition,* Columbia University Press, New York, 1947.

James, Preston E., *A Geography of Man,* Ginn and Company, Boston, 1949.

BOOK REVIEWS

Our new format permits us to publish 600 words per page instead of the 450 words per page of the old format. Consequently we plan to run between 75 and 90 book reviews during the school year 1960-1961. Book reviews of all educational levels (kindergarten, primary, intermediate, junior high school, high school and college) will and have been appearing in THE JOURNAL OF GEOGRAPHY. Book reviews in this issue appear on pages 389, 390, 392, 394 and 396.

RIVER JUNCTION COMMUNITIES OF THE LOWER OHIO VALLEY—A STUDY OF FUNCTIONAL CHANGE*

ROBERT A. HARPER
Southern Illinois University

THE LOWER Ohio Valley is a focal area of major rivers. Within 160 miles the Ohio River has junctions with four other major navigable rivers of Mid-America—the Wabash, Cumberland, Tennessee, and Mississippi. Each of these river junctions is the site of at least one settlement. Thus, this one small area is a ready-made laboratory for the study of a classic topic in economic geography —the river-mouth community.

Five river junction communities are included in this study (Fig. 1). They are Mt. Vernon, Indiana, and Uniontown, Kentucky, near the Wabash-Ohio junction; Smithland, Kentucky, at the Cumberland-Ohio union; Paducah, Kentucky, at the Tennessee-Ohio junction; and Cairo, Illinois, at the Ohio-Mississippi union.

Today these communities vary markedly in size. Paducah, by far the largest settlement, has a population of almost 50,000. Cairo had 12,000 people in 1950, but probably has fallen below 10,000 today. Mt. Vernon's 1950 population was 6,500, but it may have more than 8,000 today. Uniontown had only 1,000 persons in 1950 and Smithland only 500 people.

The population trends of each of the five communities during the last century also shows a sharp variation (Table 1). Smithland has declined from a population high in 1850. Uniontown's population reached its peak in 1900. Cairo reached its high in 1920. Paducah had a steady growth until 1940, then slumped off to 1950. Indications are that the 1960 population will show a sharp rise again. Mt. Vernon has had a generally slow but steady growth.

It is the purpose of this paper to examine the functioning of these five river junction communities in the trade and transportation pattern of the region not only today, but during the more than 150 years since the first river junction site was settled.

In this time interval the major changes in the transportation system of the country have been mirrored in the region. Four distinct times of transportation change can be distinguished: (1) the period of all-water use, 1800-1850; (2) the water-rail period, 1850-1920; (3) the rail-highway period, 1920-1940; and (4) the multiple-mode period of highways, railroads, waterways and even pipelines, 1940 to the present.

Each of these major changes in the transportation system of the Lower Ohio resulted in a re-evaluation of the river junction communities and a readjustment of their economic functions. Let us examine each of the transportation periods to see the changes in the river junction communities that have taken place.

Site and Situation

But first a few notes on the site and situation of these communities may be needed. We are here less concerned with the details of physical site than the general outline of local and regional situation.

Cairo's location at the Ohio-Mississippi junction is well known. The situation of Cairo at the southern tip of Illinois some 350 miles southwest of Chicago and south of the sparsely settled, agriculturally difficult Shawnee Hills of southern Illinois must be noted.

* Paper presented at the Annual Meeting of the Association of American Geographers in Dallas, April, 1959. This study is a part of research being conducted on the Lower Ohio Valley by the Mississippi Valley Investigations, Southern Illinois University.

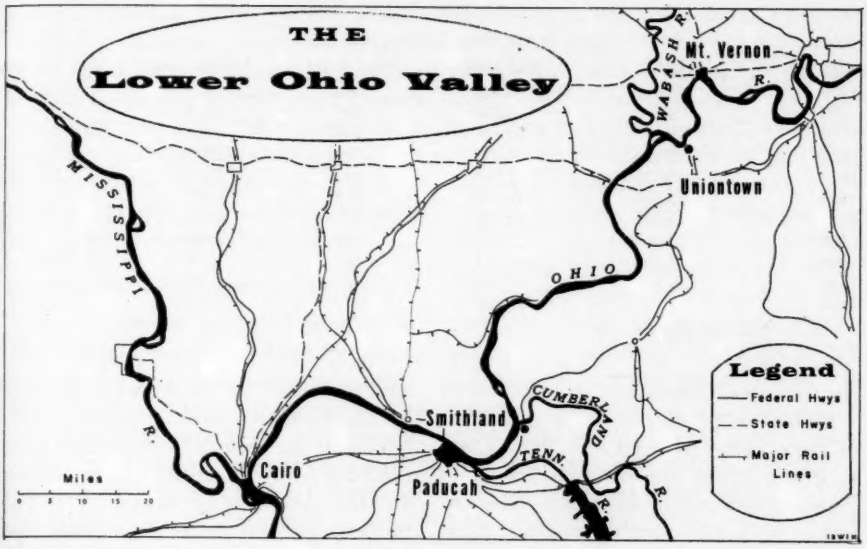


FIG. 1.

Key aspect of Paducah's situation is its position in the northeast corner of the narrow peninsula-like Jackson Purchase area of Western Kentucky between the northflowing Tennessee and southflowing Mississippi Rivers. It has long been the largest city between Evansville and Memphis. The Jackson Purchase includes the best agricultural land in Kentucky west of the Bluegrass except for patches of riverbottom.

Smithland is situated on even more of a peninsula than is Paducah. The mouths of the Tennessee and the Cumberland are only twelve miles apart, yet Smithland is on the narrow sliver of land between these rivers. Land along both sides of the lower Cumberland is poor farm country, but the Cumberland extends up to the rich Nashville basin.

Neither Uniontown nor Mt. Vernon is directly at the junction of the Wabash and the Ohio. The actual junction is surrounded by low, marshy land and is still almost completely inaccessible by land. Uniontown is six miles upstream from the mouth of the Wabash on the opposite bank. It lies on the western margin of the rich section of Ohio River bottomland that extends eastward past Henderson and Owensboro, Kentucky. The city is backed by the rolling coal country of western Kentucky. Mt. Vernon is surrounded by the rich farmlands of the Indiana portion of the Wabash pocket and is 275 miles directly south of Chicago.

The All-Water Period, 1800-1850

During the all-water period between 1800 and 1850 not only was the Ohio the main avenue for settlers and freight, but all the other rivers of the Lower Ohio Region were used for navigation as well. The crude roads were local feeders for the waterway system. The rivers were busy with flatboats, keelboats, and rafts. However, steamboats dominated traffic during most of the era.

Only three of the five river junction communities were of importance during the all-water period. Uniontown had not been established and Cairo, despite its seemingly key location at the junction of

TABLE 1

POPULATION TRENDS 1850-1950

	Cairo	Paducah	Smithland	Uniontown	Mt. Vernon
1850	242	2,428	882		1,120
1860	2,188	4,590	805	1,046	1,994
1870	6,267	6,866	690	896	2,880
1880	9,011	8,036	570	1,015	3,730
1890	10,324	12,797	541	1,037	4,705
1900	12,566	19,446	579	1,532	5,132
1910	14,548	22,760	557	1,356	5,563
1920	15,203	24,735	559	1,094	5,284
1930	13,532	33,541	519	1,235	5,035
1940	14,407	33,765	592	1,327	5,638
1950	12,123	32,828	498	1,054	6,150

Source: United States Census.

the two most important rivers, even in 1850 had only 242 people. A great deal of river traffic passed Cairo, but it was mainline traffic on through schedules between three major terminals—New Orleans, St. Louis, and upper-Ohio ports such as Louisville. Major shipments traveled directly between these terminals. Cairo, backed by no productive hinterland of its own, had no cargo to offer the trade. It was just a stopping point to take on boiler wood.

By 1850 Paducah had a population of 2,400; Mt. Vernon, more than 1,100 people; and Smithland, almost 900. All were Ohio River ports of call. The productive agricultural lands tributary to Mt. Vernon and Paducah supplied those ports with corn, pork, flour and other agricultural products bound for New Orleans or up-river destinations.

But Smithland and Paducah were also "entrepôts" for cargos shifted between the mainstem Ohio waterway and major tributary routes. Although steamboats navigated all of the rivers of the area, Ohio River vessels preferred to maintain service from port to port along the main stream rather than make side trips up the tributaries. Thus, cargos were transferred between the tributaries and the mainstem trade at the river-junction ports.

Smithland was the key entrepôt of the Lower Ohio at first, for the Cumberland, which reached up to the rich farmland of the Nashville Basin, was the busiest tributary. In 1835 half of the 233 boats reaching Nashville either had come from Smithland or were returning there. This traffic continued to increase until after 1850. However, Smithland, on the narrow sliver of land between the Cumberland and Tennessee, had virtually no hinterland of its own and thus originated almost no cargo. It did have boat repair facilities and for a time was a shipbuilding center.

Mt. Vernon had little entrepôt function even though the Wabash was second only to the Cumberland in traffic. Cargos between the Wabash and the Ohio were either handled by Evansville, Indiana, or Shawneetown, Illinois, just west of the junction.

Although traffic on the Tennessee did not approach that of either the Cumberland or the Wabash, Paducah had become the most important port on the Lower Ohio by 1850. It was a major shipping port for the growing farm output of the Jackson Purchase country between the Tennessee and Mississippi Rivers and for timber cut along the Tennessee. Merchants from Paducah wholesaled food and supplies to small communities throughout the Purchase area by riverboat along the Tennessee and Ohio.

Because of the locally generated river

traffic Paducah soon overshadowed Smithland. The two ports were only 13 miles apart. Soon, because of Paducah's greater volume of business many vessels with cargos bound for the Cumberland preferred to use Paducah instead of Smithland as the entrepôt. Thus Paducah became port for the Nashville trade as well as for Tennessee River traffic.

The Water-Rail Period, 1850-1920

The water-rail period beginning in 1850 brought the first significant re-evaluation of the river junction communities. River traffic remained important on the Ohio-Mississippi mainstem until the end of this era, but the transport orientation changed very markedly. Railroads were the making of Cairo, but they signalled the end of Smithland's growth. Paducah became an important railroad terminus, and Mt. Vernon shifted from a river orientation to almost exclusive use of railroads. The new town of Uniontown did not long have an important river connection. The discovery of coal nearby brought a railroad spur, and Uniontown turned to the railroad and away from the river.

In the early days of railroads, rivers were major obstacles and the series of peninsula-like land areas separated by major rivers made the Lower Ohio area a nightmare for railroad builders. It was a long time before any of the river-junction communities had east-west rail connections and even today no railroad follows the lower Ohio River. Basically early railroads provided connections north and south from the Ohio River along the narrow necks of land between major tributaries.

The railroad built from Louisville to Nashville in 1859 was the death blow to steamboat traffic on the Cumberland and thus to the port of Smithland. By 1870 the steamboat era was over on the Cumberland. Smithland's population had fallen to less than 700. As the population figures show, the town never recovered and since then has been just another county seat town of a poor agricultural area. When Nashville finally was connected by rail to the north, Paducah, not Smithland, was the terminus. Smithland still has no railroad.

Even before 1850 developers saw Cairo's future tied to a railroad northward across Illinois. They visualized Cairo as the port of Illinois. The initial railroad scheme failed and so did the plan for an expanded Cairo. But in 1855 the Illinois Central Railroad was completed from Cairo to Chicago, and by 1860 Cairo had almost ten times as many people as ten years earlier. (As the one port on the lower Ohio with direct rail connection with Chicago and the northeast, Cairo flourished in the railroad-steamboat period. In 1880, for one brief moment, the city even had more people than Paducah.)

Cairo's function was as a river-rail transfer point. Railroads connected Cairo with the north, but in the days before bridges the Ohio and Mississippi Rivers blocked through traffic to the south. Thus, Cairo was the terminus for the rail cargos destined for the lower Mississippi and the port-of-entry for products coming from the Mid-South. It developed warehouses, wholesale firms, and processing industries. Growing trade brought rail connections with St. Louis and Indianapolis.

Cairo became the wholesale center for the middle Mississippi Valley and competed with Paducah along the lower Ohio and Tennessee valleys. Groceries, hardware, and other supplies were delivered to Cairo by rail from the north and then distributed by river packet to the many landings along navigable riverways. Grain from Illinois farmlands also entered the river trade at Cairo.

However, by 1900 Cairo's biggest business was timber. The bottomland forests of the lower Ohio and Mississippi

had become a major timber source for growing America. Logs cut in the Mid-South were delivered to Cairo by river-boat. There the logs were processed before moving by rail to northern and eastern markets. Cairo was the world's largest cottonwood lumber market. In 1909 more than 16,000 carloads of lumber were shipped out by rail. The plant making veneer wood for all Singer sewing machines was located at Cairo, along with one of the largest wooden box plants in the world.

Paducah was cut off from the railroad system of the eastern United States until a line was built to Louisville in 1872. Even before then, however, railroads added to the importance of the city by improving the city's connections to the farm country of the Jackson Purchase. Purchase lands were developing into important dark-tobacco country, and Paducah was both market and shipping port for tobacco destined for overseas via New Orleans.

The railroads added to Paducah's wholesale function in Western Kentucky and Tennessee. Paducah, like Cairo, was also a major lumber processing center. Timber was rafted down the Cumberland and Tennessee Rivers to the city. A railroad from the north to Metropolis, Illinois, across the Ohio, gave Paducah connection with the Northeast.

Before leaving the rail-river period a note should be made of the special function of Cairo during the Civil War. Cairo was the most important northern base in the west. Not only did it guard the most strategic river junction along the western border but it had railroad connection with the rest of the North. The city became the key staging base and supply depot for the Union campaigns in the west and the base for Northern river fleets. During the war the city was almost completely taken over by the military. To a high degree Cairo's function during the Civil War was but a special case of its peacetime rail-water connection. Paducah and Smithland did not play as important roles during the War because Southern forces were not able to hold them.

The Rail-Highway Period, 1920-1940

The rail-highway period began with the disappearance of water traffic and the virtual completion of the railroad pattern. Most important, the railroads had bridged the major river barriers allowing direct connection between previously separate railroad systems that had developed on opposite sides of the rivers at Cairo and Paducah. The first railroad bridge crossed the Ohio at Cairo in 1886. Paducah's Ohio River rail bridge came in 1918, and the Thebes bridge across the Mississippi just north of Cairo was completed in 1905. These are still the only Ohio and Mississippi railroad bridges in the area. The lack of bridges has been a further handicap to the development of other river junction cities.

But bridges, to a high degree, killed Cairo's rail-water transfer function. Cargos now moved directly over the new bridges without stopping at Cairo. The city not only lost its important river traffic but ceased to be a major railroad point. Without its transfer function and with no local hinterland to provide cargo to the rails, Cairo lost its major reason for existence. Decline of timber operations in the Mid-South added to the problem.

Before the bridge connections, four railroads had yard and terminal facilities in Cairo. Although the railroads were slow to pull out, they gradually cut back service and then abandoned facilities, leaving Cairo not only with a ghost-town riverfront, but with rusting railroad yards and crumbling stations.

Unlike Cairo, by the 1920s Paducah had successfully changed from river port to one of the most completely rail-dom-

inated cities in the country. The earlier river barriers to railroads had resulted in Paducah becoming the terminus for railroads to the east, south, and west. The railroad bridge added access to the north. As a terminus rather than just a line station, Paducah had major railroad yards and offices and was the home of operating crews. The Illinois Central Railroad operated three different lines out of the city. This railroad also located its major locomotive works in Paducah. In 1928 the locomotive shops alone employed 1,800 workers in a city with a population of slightly more than 30,000 people.

As a railroad focus and the largest city in Western Kentucky, Paducah maintained its strong position as a wholesale and trading center. Merchandise from Paducah wholesalers was distributed to the surrounding territory by rail, wagon, and truck. Paducah also continued as a major farm market, shipping tobacco and fruit from nearby farms.

The coming of highways as a major part of the transport system of the Lower Ohio after 1920 brought further changes. To a high degree roads were state and local rather than national routes. Even today there are only three U. S. highways in all the region—one running east-west south of the Ohio; one north-south highway crossing the Ohio at Cairo; and a similar highway crossing at Paducah. Mt. Vernon and Uniontown still have only state highways. The Wabash River bridge west of Mt. Vernon was not completed until a few years ago. U. S. Highway 60 passes through Smithland on its way west to Paducah.

As major river crossing points Paducah and Cairo became highway foci as well as railroad centers. Until the 1950's the only Ohio River highway bridges below Evansville were at Paducah and Cairo, and the only Mississippi River bridge between Cape Girardeau, Missouri, and Memphis is still at Cairo.

The Multiple-Mode Period, 1940 to Present

Highways and truck traffic have been a mixed blessing to Paducah and Cairo for they signalled a marked decline in railroad service. Paducah no longer has direct rail freight service northward, and the locomotive shops now employ less than 300 persons. Highways and trucks have also hurt the wholesale business of both cities. Highway distribution in the region is now out of Evansville, Nashville, St. Louis, and Memphis.

Even the revival of water traffic on the Ohio and Mississippi has meant little to Cairo and Paducah. River cargos bound for Chicago by-pass Cairo in favor of the all-water route via the Illinois Waterway. With increased traffic on the Tennessee River, Paducah has a tiny remnant of its old entrepôt trade and has one of the major barge building works on the Ohio. To a large degree, however, the major function of both ports is as a storage point for barges being transferred from one tow to another without being unloaded.

In the present multi-mode transport period Cairo and Paducah show their closest ties to passenger highway traffic. Paducah is the northern highway gateway to the Kentucky Lake tourist country. Highway 45 on the southern fringe of Paducah is lined with tourist facilities. Cairo is a one-day drive from Chicago on the main route to New Orleans and is close to the Southern Illinois goose hunting area. As a result of this combination, Highway 51 from several miles north through the city has become dominated by highway services. Food and drink sales in Cairo are almost double the amount for other communities of comparable size in Southern Illinois, and gas and oil sales are high.

Perhaps Paducah's most important transport connections today are electric high lines and a gas pipeline. These connections, plus river location that pri-

TABLE 2
TONNAGE OF LOWER OHIO PORTS
1958

	Receipts	Shipments	Total
Mt. Vernon	1,436,979	3,249,180	4,699,217[a]
Paducah	661,300	115,855	777,155
Cairo	237,464	233,094	470,550
All Others[b]	67,816	1,130,919	1,130,919

[a] Includes 13,058 tons of local traffic.
[b] Cave-in-Rock, Metropolis, Shawneetown, Smithland, Uniontown.
Source: Corps of Army Engineers.

marily provides water for processing and water-compelled truck and rail rates, have resulted in the location of modern heavy industry in the Paducah area since 1950. Such industry has sparked the population rise in Paducah since 1950.

As Table 2 shows, the major port in the Lower Ohio region today is Mt. Vernon. Never a significant port in the past, Mt. Vernon handled more than 4.6 million tons of cargo in 1958 and is one of the busiest ports on the Ohio.

Mt. Vernon, today, performs the same function that Cairo did fifty years ago. It is a major transfer point between the Ohio-Mississippi waterway and land routes to the north. Two major cargos are handled—coal and oil. Coking coal from up-river fields is transferred to rail at Mt. Vernon for shipment to Chicago steel industries. Mt. Vernon is the closest Ohio River port to Chicago.

However, petroleum products dominate Mt. Vernon's traffic. Most are refined products moving out of the port, for Mt. Vernon is backed not only by local oil fields, but by the oil pools of eastern Illinois and western Indiana on either side of the Wabash. Products come not only from a local refinery but from other refineries up the Wabash Valley. Since the Wabash is no longer navigable, Mt. Vernon is the closest point to the present inland waterway system for the products of these refineries. Today pipelines rather than railroads and highways are the most important connections for this port.

Uniontown is a bulk shipping port today. A large coal mine west of the city has direct conveyer connection to a loading dock on the river. This is typical of new coal installations along the Lower Ohio.

Conclusions

The river junction communities of the Lower Ohio Valley afford a laboratory for the examination of the function of river-mouth communities. It has been shown, in this case at least, that major changes in the transportation system have had marked effect on the functions performed by these communities. Changing function has, in turn, radically effected the growth of the communities.

It has been impossible here to document the impact that transportation changes have had on the structure of the communities and on their employment pattern. The visitor to the Cairo waterfront or to Smithland would notice it immediately. As might be expected, the impact has been great. Whether growing or declining as a result of these functional changes, each community is faced with major problems of adjustment in its urban plant.

NCGE MEMBERSHIP DUES

Regular membership dues will be increased to $5.00 per year as of January 1, 1961. This increase of $1.00 has been necessitated by increased publication and activity costs.

A *Student membership* has been created. Cost to the student is $3.00 for one year. The student membership must be certified by the teacher and then mailed directly to the Secretary, National Council for Geographic Education, Department of Geography, University of Texas, Austin, Texas. THE JOURNAL OF GEOGRAPHY will be mailed directly to the student at the address he gives.

OBSERVATIONS ON THE GOALS AND METHODS OF REGIONAL COURSES

VINCENT MILLER
The College of Wooster*

THE REGIONAL[1] COURSE offering, it has been said time after time, is the unique contribution of geography to liberal education. Much has been published, and more said, concerning the virtues and inherent worth of the regional approach to geographic education—to "understanding" a given spatial unit of the face of the earth. It seems that regional and area courses have been proportionately more in demand on the college level since World War II. Assumedly this has occurred because time, popular publications, and certain systematic disciplines have emphasized and unmasked the real interdependence of nations, and because this nation's foreign policy has shifted toward a more vivid realization of genuine international concern. As a result, it has been the vogue to affirm and reaffirm the urgency of understanding other cultures and their problems in the new "one world." The study of foreign languages has become more prominent in a land where no second tongue is really necessary. All this and more has come to pass in the name of international awareness.

Geographers have been quick to claim a lion's share of the educational portion of this responsibility. In evaluating the role of the geographic approach toward a greater world cognizance, W. A. Browne stated:

> The geographer is well equipped to serve as a coordinator in human affairs. The very nature of geography . . . places a student of the field in a position to view the world panorama.[2]

One educator even states that "geography is designed to develop good will and international understanding."[3] The implications are clear from these and other references in the literature that geographers are *more* than willing to assume a goodly part of the educational burden of international understanding. The various claims that geography, particularly regional geography, is eminently fitted to promote such understanding has justified the expansion of college curriculums through the addition of regional courses. Liberal arts colleges expand their geography curriculums in the name of a more truly liberal education. Teacher training institutions follow suit, but they have an added incentive, the intensely practical reason that such course offerings substantially reduce the preparation time expended by neophyte elementary and secondary teachers. Regional course work retains large enrollments in state teachers' colleges and other state institutions for this reason. Indeed, liberal arts colleges are not entirely free from this tinge of practicality. The author has noticed student partiality toward these informational compendiums, even in a predominantly non-teacher oriented liberal arts college.

Beneath this hardpan of theoretical and practical virtue may be detected observable rumblings of discontent, murmurs that must generally be heard, or worse, only inferred; only glimpses of

* Present address: Department of Geography, Michigan State University, East Lansing, Michigan.

[1] The descriptive terms "regional" and "area" are not used in the strict sense proposed by Whittlesey, but rather are used to describe course work that deals with a unit of the surface of the earth, whether it be a geographic region or an area of the world. See Derwent Whittlesey, "The Regional Concept and the Regional Method," *American Geography Inventory and Prospect*, Syracuse University Press, 1954.

[2] W. A. Browne, "The Geographer as Coördinator," JOURNAL OF GEOGRAPHY, 54 (1955), 89.

[3] N. V. Scarfe, "Geography across the Curriculum," JOURNAL OF GEOGRAPHY, 58 (1959), 113.

criticism can be seen in print. The author has heard rather caustic denouncements of regional and area courses. The accusations are basically that one such course is like another in goals and method, consisting of unrelated facts that must be memorized (the bogy of modern education). Such remarks should not be sloughed off lightly as idle-time meanderings of otherwise responsible geographers. However, a study of the articles in JOURNAL OF GEOGRAPHY since 1950 reveals little overt questioning of the value of regional course work. Similarly, even less criticism appears in the other American journals devoted to geography. But one highly respected American geographer, Carl Sauer, has very pointedly questioned the value of regional courses in his published essay on "The Education of a Geographer."[4] The author, as a beginning instructor at the College of Wooster, has similarly pondered the value of regional and area course offerings.

The quest for a reasonable answer to this enigma has revealed many interesting things. A review of recent literature uncovers a phantasmagoria of discordant views, comments, and proposals, some with specific reference to the teaching of all geography, hence supposedly applicable to either the systematic or regional teaching of geography. Categorically, these articles can be separated into three groups: those concerned with the goals, the methods, and the techniques of geographic instruction. This paper is concerned only with the goals and methods of regional course instruction. It has been felt that a discussion of the techniques concerned with teaching regional courses is largely a matter of individual application of goals and methods to a given region and beyond the scope of the paper.

[4] Carl O. Sauer, "The Education of a Geographer," *Annals* of the Association of American Geographers, 46 (1956), 293-294.

The Goals

The realization that teaching must be directional toward a purpose, a goal, is certainly not absent from the literature, but less attention is rendered the subject than the more mechanical aspects of teaching.

It is the contention of this author that the postulate on which efficient and purposeful teaching is constructed is an understanding by the instructor of an all prevailing goal. As Scarfe states, "the teacher must decide on purpose, aims, or objectives . . . and must state these clearly. . . ."[5] Whether they be classified as purposes, aims, or objectives, few will doubt the advisability and the necessity of goalful teaching. The mechanics of course presentation must be subordinate to, and within the framework delineated by, the goals of the individual course. In teaching non-systematic courses, the aims and purposes of instruction are not always crystal clear to the student, and one wonders if they are always clear to the instructor. More than anything else, purposeful instruction assumes unity, the very thing that is so often lacking when systematic criteria of the various elements of geography are applied to a unit land area. The danger here is that the instructor assumes that the given unit of space is unity enough, that material is naturally unified because it is pertinent to a natural spatial unit. Thus, the existence of Africa or Ohio is enough unity for saying something (for 45, 50 minute periods) about Ohio or Africa. The reasoning here is fallacious, even in the name of world-wide understanding, because the thread of unity cannot be created from abstract space, and goals will be lost in a limbo of disorganization. Furthermore, no system of organization, however fine or complex, can be a prerequisite to goalful teaching. Goal-

[5] N. V. Scarfe, "Geographic Education and Teaching Method," JOURNAL OF GEOGRAPHY, 55 (1956), 59.

ful teaching assumes unity, but it is not a result of unity; rather, unity is a result of goalful teaching.

Of goals, educators and geographers have expressed varying opinions. A few quotes serve to illustrate some current thinking on this problem. McNee[6] sets the stage by saying that any course must be more than a sterile arrangement of facts. Indeed, the regional course should entail something else, but what? Scarfe[7] states that the regional course should illustrate principles. L. F. Thomas thinks that instructors in geography should ". . . train them in patterns of interpretation . . . which also develops abilities to originate new skills and patterns."[8] Others would like to compare environments, stimulate thought, understand nations, and so on. Such goals in themselves may be perfectly valid, but after pursuing all this and more, which, if any, is to be the prime goal for regional courses?

Before answering this question, it is important to remember that the teaching profession is noted for its idealism. Idealism is a fine thing, but many of the proposed goals for teaching geography seem to be too idealistic, that is, beyond the grasp of comprehensible course methods or understandable classroom techniques. If the ideal *raison d'être* of regional courses is to illustrate principles, to stimulate thought, to understand nations, etc., could not all this be better accomplished through systematic course work, or even through another discipline of study? These goals, however valuable, are not enough to justify the use of the extremely difficult, indeed for many, almost unmanageable, regional approach, when other approaches more effectively answer the same cause.

Of the many suggestions, the ones concerning comparison of diverse geographic environments offer some tempting possibilities, ones that should be handled with caution. Such a comparison must be done with a definitive purpose in mind, and not as an abstract pedagogical experience. Comparison of different environments relies upon scientific systematic investigation of environmental phenomena and the comparison of this phenomena with a reference standard. This should be done for a specific reason, for example, similar to the purpose and the format of the climatic analogs prepared for the Army by a team of geographers at the Quartermaster Research and Engineering Command, Natick, Massachusetts.[9] To compare environments without a standard of reference, merely for the sake of comparison is to invite enquiry as to the validity and usefulness of the method.

L. F. Thomas's suggestion with reference to pattern interpretation is more relevant to the problem at hand; it necessitates the use of the regional method and opens the door of inspiration for the devoted student. Coleson[10] writing on geographic patterns, amplifies this view by suggesting that the methods of Gestalt psychology would be of value for gaining regional insight and perfecting teaching methodology. Gestalt psychology is concerned with the relations of the parts to the whole. It implies a process of deductive reasoning, and the

[6] Robert B. McNee, "Geographical Objectives in General Education," JOURNAL OF GEOGRAPHY, 55 (1956), 391.

[7] Scarfe, *op. cit.*, p. 64.

[8] Lewis F. Thomas, "An Appraisal of Teaching Geography at the College, University, and Graduate School Level," JOURNAL OF GEOGRAPHY, 49 (1950), 138.

[9] This series of studies compares world climates with climates of Army test stations at Yuma, Arizona, Fort Churchill, Manitoba, Fort Greeley, Alaska, primarily for the purpose of assessing military clothing requirements. See "Geographical and Climatological Publications of the Quartermaster Corps," obtainable from the Headquarters, Quartermaster Research and Engineering Command, Natick, Massachusetts.

[10] Edward Coleson, "The Application of Educational Theory to the Teaching of Geography," JOURNAL OF GEOGRAPHY, 53 (1954), 349.

interpolation of smaller regions within the whole spatial unit. The development of deductive interpolative abilities is a sound justification for regional courses, if the student is inclined toward a professional career in geography. This approach presupposes a thorough grounding in the regional concept and interest beyond that of the casual student. The difficulties of this approach are various and sundry both from the standpoints of the instructor and the student. Nonetheless, this is an avenue that should be more thoroughly explored.

The "Gestalt-interpolative" approach certainly has merit, but scarcely serves the needs of the liberal arts student who wishes to broaden the horizon of his liberal education rather than sharpen his geographic perception. For this group, too, there must be a prime image that serves to create new pathways of insight for liberal arts students. It is thought that these insights should not be overly concerned with creating a feeling for geography, *per se*, but with creating a feeling for the study area. In stressing the importance of the regional concept and spatial understanding, McNee and Johnson offer two approaches toward the development of this feeling. McNee, in writing of area studies, states:

> Area studies without the regional concept remains a series of separate and disconnected studies of specific phenomena—interrelations must be guessed at, but not easily grasped.[11]

Writing about the same time, Johnson spoke of 'spatial feeling', the German *raumgefühl*. This essay appeals for an understanding of distance, space, and the phenomena of crowdedness:

> . . . Let us have the vision that more or less measurable quantities such as per capita income, daily calorie consumption, population density . . . apply in reality to diversified geographic environments which involve qualitatively different reactions from people.[12]

This concept includes Kimble's suggested goal of providing "an understanding of the differences between one environment and another"[13] plus something more: spatial feeling. The concept of spatial feeling combined with the regional approach is a sound beginning to solving the question of desired goals for the regional course. Mindful that aspiring professional student-geographers and liberal arts students have different outlooks and seek different things, and that there must be a prime goal that is always foremost in the mind of the instructor, a definition of this prime goal for regional courses is sought. This definition must vary according to one's perspectives on education, and the particular goals of the educational institution concerned. If liberal education is defined as the basic educational qualification for living in a free society, then the prime goal of regional courses should be *to incite a spatial feeling of human response through delineation of specific phenomena for a given areal extent.* Other goals may add dimension to the course offering but must be subservient to this prime goal.

The Methods

Any declaration of ideals is meaningless unless it be put into practice. In the instance of the teaching of regional courses, the essential thing is that the goals and the methods of teaching must be closely interwoven to form an inseparable fabric. In reality, methods and goals are not individual component parts but rather a mosaic of integrated parts. The lack of an intimate relationship between teaching goals and method-content is the real heart of darkness for the regional course.

---

[11] McNee, *op. cit.*, p. 10.

[12] Hildegard Binder Johnson, "Spatial Feeling in Geography Teaching," JOURNAL OF GEOGRAPHY, 55 (1956), 340.

[13] George H. T. Kimble, "The Role of Geography at the Mid-Century," JOURNAL OF GEOGRAPHY, 50 (1951), 46.

Much has been written concerning the teaching methodology of regional geography, definitive course outlines have been suggested, scores of class-room techniques have been invented. Aside from techniques, these proposals fall into three large groups, techniques not being considered in this paper.

One category of proposals has as its foundation one of two closely related methods corresponding either to Hanson's "logical" or "psychological" course outline.[14] The "logical" approach involves the application of the systematic elements of geography, first physical and then human or economic, to a specific region or area. The "psychological" outline starts with the human elements of geography and includes pertinent physical elements as needed to explain the human elements. Either method is designed to be applied more or less rigidly to any region. Objections to these methods are that the course is oftentimes literally compiled and the information merely recited. It is felt that integration of material is especially difficult as is analysis without the integration of material. This attack however enables a complete coverage of the elements of geography but can suffer from the lack of objectivity for a given region. If the heretofore proposed goal is retained, this type of course outline must be trimmed to include only those systematic criteria of human and physical geography that are meaningful to the region, *per se*, and to the cause and effect relationships of environment and human response.

An alternative course outline is the "inductive" approach as proposed by Scarfe, in several articles.[15] The method entails selection "of a small typical sample area." These sample areas are to be compared with the home region, that is, a well known region, for the purpose of illustrating principles and concepts. The nature of the total study area would be induced from the study and fusion of the typical parts. Earlier, Van Cleef pointed to the difficulties of such comparative methodology:

> To be sure one can describe two or more natural or cultural landscapes and point out their differences . . . but a sound interpretation of those differences without a standard of reference is not possible. Only accumulation of data which ultimately reveals identical occurrences under identical circumstances can lead to the formation of laws. . . .[16]

Comparisons of environmental action and human reaction for diverse segments of the world can lead to confusion or overt misunderstanding on the part of the students and invalid conclusions on the part of the instructor.[17]

For culture and cultural response two unlike systems are not easily comparable because the standard of reference is often arbitrarily chosen. The inability of one culture to comprehend and understand another culture often stems pre-

[14] Raus M. Hanson, "Possible Outline for Studying Geography of a Country," JOURNAL OF GEOGRAPHY, 52 (1953), 23-25. This "psychological" approach should not be confused with Coleson's "Gestalt" approach.

[15] N. V. Scarfe, "Geographic Education and Teaching Method," JOURNAL OF GEOGRAPHY, 55 (1956), reference to this method on p. 64. The other references have been cited, footnotes 2 and 3.

[16] Eugene Van Cleef, "Must Geographers Apologize?" *Annals* of the Association of American Geographers, 45 (1955), 108.

[17] Parenthetically, this is subject enough for a separate paper. The term "human reaction" as used in this paper implies reaction in either a positive sense, i.e., a direct response to a given environmental stimuli, or in a negative sense, the lack of such a response. Two new and significant publications deal with this problem in different ways. See George F. Carter, "Man, Time, and Change in the Far Southwest," *Annals* of the Association of American Geographers, Vol. 49, no. 3, part 2 (1959), pp. 8-30, and A. William Hoglund, *Finnish Immigration in America, 1880-1920*, University of Wisconsin Press, 1960. This latter volume deals with the importance of economic and environmental effects on Finnish settlement patterns in the United States. Dr. Hoglund, assistant professor of history at Muskingum College, presents some challenging views for geographers. This volume has been available since June.

cisely from the eternal comparison of the known (the home culture) and the unknown (the foreign culture), rather than from a definite effort to singularly master the unknown. Warman's suggestion is far more realistic: "If geography majors are to study another culture region, why not open the door through the language of the culture world?"[18] Whether the vehicle be language training or the "prior and major preoccupation" that Sauer says is necessary as a requisite for good regional offerings and regional understanding,[19] the goals and methods of regional courses should be concerned only with the study region, or at most the economic and cultural interactions with adjoining regions. Spatial feeling demands an original start: it must create within the student the ability to "feel" (for lack of a better word) the element of space much as a language trains students to think as another culture thinks. These elements of thought process and spatial feeling in cultural study cannot be readily separated, and should go hand in hand.

A third and little recognized approach to the teaching of regional geography is that suggested by Coleson. This approach stresses the relationship of the parts to the whole as through the perspective of Gestalt psychology. To quote Coleson:

> Would one try to comprehend a city by a detailed study of each block followed by a synthesis to form a whole, or would it be more logical to orient oneself with respect to the main streets, business section, . . . followed by the micro-study of detail, if, when, and where it might be indicated?[20]

This approach is particularly inviting, and is applicable to any region. The "bold strokes" of Coleson, or general overview of the region, involves not a fierce deluge of information, but rather a gentle inundation of knowledge. At the same time, it offers some comments on Scarfe's method of integrating a number of sample areas to form a whole region, but otherwise is not unlike Scarfe's suggested method. To amplify on Coleson's method and suggestions, it is felt that the approach cannot be restricted to use of either the inductive or the deductive methods of instruction in analysis of the micro-regions but must be suited to the situation. For example, the causes of one cultural micro-landscape may be deduced through cautious study of physical environment, but it would seem that another cultural landscape is a product of time, and the total phenomena cause and effect relationship must be induced through the significant period of human history. Fuson points out that "in order to understand modern cultural landscape . . . one must learn all he can about the previous cultural landscape."[21] This method seems to be valid and preferable to the presentation of regional geography. It is not always true that for every action there is an immediate and spontaneous cultural reaction, i.e., that an account of apparent cause and effect relationships is sufficient in understanding cultural direction or cultural change through times. William L. Thomas has astutely observed that, to him, ". . . geography is what has been happening to the earth's surface during the last million years or so—the period of human occupancy."[22]

American geography has been criticized for assuming too much and knowing too little, delighting in description, and ignoring interpretation.[23] Does this

[18] Henry J. Warman, "Improving College Training of Geography Majors," JOURNAL OF GEOGRAPHY, 56 (1957), 7.

[19] Sauer, *op. cit.*, p. 294.

[20] Coleson, *op. cit.*, p. 349.

[21] Robert N. Fuson, "The Necessity of the Historical Approach to Cultural Geography," JOURNAL OF GEOGRAPHY, 57 (1958), 401.

[22] William L. Thomas, in the introduction to "Man, Time, and Space in Southern California," *Annals* of the Association of American Geographers, Vol. 49, no. 3, part 2 (1959), p. 4.

[23] These are the author's own words, but, for

also hold true in the teaching of regional courses, where the audience, for the most part, is non-critical and the lecturer is without intellectual peer? Interpretation is essential to such teaching, both on the part of the student—if only at examination time—and on the part of the instructor. Interpretation here involves a valid appraisal of cause and effect through time, which is process, unless the course is to involve description only. The recent supplement to the *Annals* of the Association of American Geographers[24] emphasizes processes and their resultant effects on three fundamental phenomena, the wild, the cultivated, and the artificial aspects of Southern California. This is good for Southern California, but other regions may have a different set of fundamental phenomena that are vital to its geography. No one method is applicable to every case, if the best results are desired. The instructor must decide for himself the cardinal elements that are suitable for operational standards, within the scope of his teaching methods and the framework of his predetermined primary and secondary goals.

example, both Van Cleef, *op. cit.*, and Fuson, *op. cit.*, caution geographers of invalid interpretation.

[24] *Annals, op. cit.*

Conclusions

The inadequacies of regional course offerings mostly stem from the difficulties of relating meaningful phenomena to cultural configuration and at the same time achieving an insight to geographical principles.

The creation of a regional course implies synthesis of adequate goals, the regional concept, and a realistic meaningful method. For the student, the goals and methods of teaching regional courses should incite a spatial feeling of human response through realization of the processes resulting from the physical and cultural cause and effect relationships for the specific geographic phenomena that have been of importance to the region. A cultural region is composed of three integrated dimensions, time, space, and cultural direction. The geographic phenomena of importance to the study region should be selected from the study of the specific cultural mosaic through these factors of time, space, and cultural direction. The importance of the geographic elements should be deduced in the preliminary overview and then applied systematically to the region. The use of such a method allows wide latitude for individual choice of technique, for the illustration of principles valid for the area, and for the realization of more goalful teaching.

GEOGRAPHIC MATERIALS RECEIVED AND BOOK REVIEWS

Because THE JOURNAL OF GEOGRAPHY is published monthly between September and May, it is possible for you to read listings of new publications and other geographic materials received earlier in THE JOURNAL than in some other magazines. Also book and map publishing companies are able to call your attention to their new publications earlier in THE JOURNAL OF GEOGRAPHY than in many other geographic and non-geographic magazines. Please refer to cover II, pages 347, 348, 349, 350, 388, 389, 391, 392, 393, 395, 396, cover III and cover IV.

WHY GEOGRAPHY—TO HELP ME CHOOSE A CAREER*

DANIEL M. EVEN
North Brandywine Junior High School
Coatesville, Pennsylvania

IT HAS BEEN SAID that the key to understanding is wisdom and wisdom arises from knowledge. To me, the field of geography is one of the most important fields in our twentieth century society. It can be a crystal ball in which I can foresee, to some extent, what the future holds and where.

At this time in my life, I am often concerned about the problem of choosing a career.

Suppose I should want to study agriculture. My geography tells me that I could find a challenge in this field in China or India where large populations and poorly developed agricultural habits constantly present the problem of starvation. To help, even in a small way, to solve such a devastating situation would have personal rewards in abundance.

In our own country we have much more to learn about agriculture and vast opportunities to improve our present methods. For instance, in our Mississippi drainage system, which includes over half of our United States, tons of useful top soil are being washed away into the Gulf of Mexico every year.

The overproduction of farm products is another problem in our country which must be solved.

Efforts are being made to exchange ideas in agriculture with Russia. What better way to break down barriers? Through studies in geography, this can be done.

On the other hand, I might become a meteorologist. Weather has always been a factor of man's environment which presents problems, many of them as yet unsolved. I have learned in geography that this is an important field, for many times weather has stood in the way of plans made by some of the most powerful men. The good geographer will be familiar with the general weather conditions of all parts of the world. If the task to be accomplished is of an agricultural nature or of the military or whatever, weather must be considered a vital part of any physical environment. Our climate helps make possible the high standard of living we have today. The study of climate of other countries can help men get the best from the land by adopting crops and habits in accordance with the existing weather conditions.

However, many times I think it would be interesting to be a geologist. I have learned the basic patterns of rock formations. To study them further would be fun—fun that could pay off, for from our rock formations come many useful commodities, such as lubricants, fuels, metals, jewels and others.

In the many fields that are covered by conservation, a basic knowledge of the world around us is a very necessary thing. No matter how much one knows about geology, agriculture, botany, mathematics or any other subject, he must be able to control the productions and the reserves of the elements that are so vital to man's existence. I, like my brother, Darrell, who is studying to be a forester, may someday make my contribution to society through the field of conservation.

Instead, I might enter politics. If this will be my choice in careers, my basis in geography may be the foundation of an understanding which could open many passageways to success. What I mean is

* Editor's Note: Master Daniel M. Even, an eighth grade pupil studying under Mr. John A. Bonham, North Brandywine Junior High School, prepared this paper as a talk. The talk was given at a luncheon during the Spring Meeting of the Pennsylvania Council of Geography Teachers held in Philadelphia.

that if I gain a great knowledge in geography and should, by some chance, become a representative in Congress, I could possibly work my way up to the position of Geographer on the President's Cabinet, if, by that time, such a position exists. I think, however, that there will be such a position in a few years, for soon it will be realized that such a person is needed for our foreign aid program and many other problems that arise in our legislature. Although I may never obtain this position, I am trying to get all I can out of the short education I am receiving in geography so that if I get such a chance, I will have this essential foundation.

In addition to these, another occupation attracts my attention. I am referring to a navigator. In my studies parallels, meridians, degrees and minutes have been an important factor, for every time I look at a map, I am looking at these. I know if my goal in life will be that of a top navigator, the things that I have studied in geography will then be in order to make a living.

Quite on the contrary, sales work often comes to mind. An investigation of geography has helped me to see the possibilities in being a salesman. The better knowledge one has of the people and the land he works about, the higher quality businessman he may become. Also, more business can be received by understanding your customers and their surroundings in order to plan sales to meet their needs and for their convenience. These and many more things that stem from geography can help me see what sales work holds and what I can do to be a success in the business field.

Also, if I should enter the field of architecture, my background in geography could prove very valuable. This is true because a home or building that is designed by a good architect is one that is built at the cheapest cost, adapted to its surroundings, to look attractive and to fit the needs of its occupants. A good architect keeps in mind geographic conditions when planning what the structure should look like, what special requirements it should have and, of course, what its surroundings are. Such is the case in a modern mountain home, which will serve as a fine example. The country around this home was very scenic but the climate rather cold. To serve two purposes at once, the architect surveyed the lay of the land and decided to use the beautiful forests as natural wall paper and the wall paper as a heating source. This was done by using special plates of glass that would concentrate the sun's rays, therefore cutting down on the cost of heating.

Likewise, I have often considered being a minister. The natural wonders of our world are so great that I may be inspired enough to study religion and later enter the ministry, so that I might better know the Creator. If so, my geography classes would be largely responsible for a very important decision.

In the medical field I can similarly serve man and come closer to God directly. I have been wondering whether or not the study of medicine is a good career for me. If it is, and I become a doctor, I will be dealing very closely with people and their surroundings. This is so because the natural environment of man is the source of disease. To find the cure for any illness or to prevent it, the cause must be found and coped with. Since man's environment contains the causes of these diseases, geography enters the problem directly.

My studies in junior high school have also shown me that there are disease centers in India, Africa and many other underdeveloped countries. Here, I feel, is a generous opportunity to create understanding among countries and good will towards ours. We could send many

doctors to these areas. True, there are a few there now but there is still a great need for more. This shows us that through a study of geography combined with that of medicine, we can locate great opportunities for world peace. This is true of many other occupations and geography.

Though I have not decided on a career and probably will not do so for at least two more years, I am sure that studies in this wonderful subject will be of tremendous value in aiding my classmates and me in making such a choice.

There is one thing, however, that I dislike very much about the geography curriculum in our schools at the present time—this is the small amount made available to us. A study as important as this, that helps youngsters like myself see what different careers offer for them and helps them decide what their futures shall be, has no right to be pushed aside and taught for only two years. A study of geography cannot be replaced. There is nothing which, if studied, can help build world understanding and strengthen the future of our country as much as geography can. We ask for a more complete education in this field so that this generation and our children may have a better chance to live in this free and powerful Union, The United States of America.

USING MAPS IN TEACHING HISTORY

HARRIETT CHACE
Harwich, Massachusetts

Introduction

"THE PRIMARY PURPOSE of maps is to assist the pupil in grasping the place relation, or, to put the matter more generally, to assist the pupil in keeping history on the earth."[1]

Too often the social studies teacher in the intermediate grade, the junior high, and the senior high class makes one or more of these mistakes:

(1) He assumes a background of understanding of map symbols, concepts of places and distances, or geographical conditions that does not exist in the minds of his pupils.

(2) He is completely unaware of the map skill work that has been done in the grades below his on which he could build before launching into the use of maps in history.

(3) He does not establish the location or situation in terms of the known or make comparisons with distances or areas that the majority of class members can understand so that they may feel themselves in the past, in a particular spot or area, and in a particular situation. The map, perhaps tremendously vital to the teacher, is dead and dull to students.

(4) He does not consider the individual differences in the members of his class. He refers to maps in teaching history rather casually in a vocabulary that is intelligible to himself and perhaps to some of the more gifted students in the class, while the main body of pupils may be memorizing a mass of historical facts that are necessary to use for reciting or to pass quizzes, but missing the stimulating experiences that could be theirs in understanding historical maps.

(5) He does not use various projections

[1] Henry Johnson, *Teaching of History*, Macmillan Co., 1942, p. 220.

of maps to illustrate distances and locations nor select maps for historical illustrations that are particularly suitable for the aim of the lesson. He neglects to evaluate and analyze critically maps in textbooks or wall maps and to encourage students to be critical and to check sources of each map used. Any map may satisfy teacher or pupils if they underestimate the power of maps used in such a way that history is vitalized.

(6) He fails to check with teachers who have his students in other subjects as to how they could work with him to develop skills.

These six points will do for a start in discussing the teaching of history with maps in the grades above the primary. Before making certain suggestions that are based on actual teaching experiences, I should like to clarify one point. This paper cannot be concerned with the problem of whether geography and history should be taught as separate disciplines. Neither do I approve of units of work which take up briefly the geography of an area before launching into its history and then consider geography taught and do not refer again except most casually to any geographical aspect. It is certainly desirable to establish a place, distance, geographical situation, and geographical vocabulary base before plunging into historical units, but this should resolve itself into time spent in establishing necessary skills. The historical map reading and construction blends into the teaching of the unit and becomes an integral part of the understanding and enjoyment of history, if it is carried on concomitantly with the action.

Abilities and Attitudes

The intermediate, junior high, and senior high social studies teacher, then, starts by not assuming any background in his pupils until he has established in his mind the following data about his class group: (1) the range of abilities within the class; (2) the background in map skills; and (3) the attitude of the group toward history and toward map work in general.

The range of abilities within a group simply establishes criteria on which to base the type of map work possible, the standards to which one can aim in concepts and in work produced by the pupils, and how to provide for individual differences within a group. A teacher must be careful not to assume that the higher the student's IQ the better the skill in historical map work will be. It is not so simple as that. Providing the interest and drive are equal, the understanding and reading of maps would be higher, but the construction of maps and even the intelligent use of them may be higher in a lower ability student who has found this one place where he can excel scholastically.

Each student succeeds in historical map work not only according to his general ability, but also according to background, interest, and drive. The backgrounds of pupils' work can be easily established and should be one of the first jobs of a teacher with a new class. Several approaches to this may be used. Some of these are: (1) standardized tests in map skills; (2) teacher-constructed tests which in some cases would be superior to standardized since they should be more apt to test the skills the teacher wishes to develop in the pupils; and (3) discussion periods that amount to oral evaluation. This third method will necessarily leave out some children who do not volunteer, but should give a general picture of the class background.

There is no problem with today's children in determining their attitudes toward history or map work or toward any-

thing. They don't even have to be consulted but will groan or cheer when a subject is presented. It is intriguing to wonder why an entire group will be enthusiastic about map work and the next year's class will think it a bore when both classes have had the same training in the elementary grades. The problem of class empathy is a relatively unexplored one. For the purpose here, it is necessary simply for the teacher to determine whether he has to break down an adverse attitude or build upon a favorable one.

Map Experiences

Since it is often a mystery to a junior high teacher what has been taught in the elementary school in map work as well as in other subjects, some system should be established whereby the matter can be cleared. To demonstrate to these teachers what has gone on in previous years, it should be possible in the field of building skills to try these two suggestions: (1) Build up a graded skill list in map work that recognizes individual differences in capacity, interests, and learning rates and lists skills in order of their own complexity rather than at school grade levels. Have this list available from kindergarten through grade twelve and have each teacher of social studies adjust his skill program to a progression on the list and carry each skill as far as possible with each child. (2) Indicate on each child's record the skills that he shows evidence of having developed (tested by independent use of these skills) and have this record continue with the child throughout school. This makes a team of all teachers on the skill program.

Examples of Pupils' Maps

The map in Fig. 1 was developed in a third grade and indicates that pupils who continue this type of training

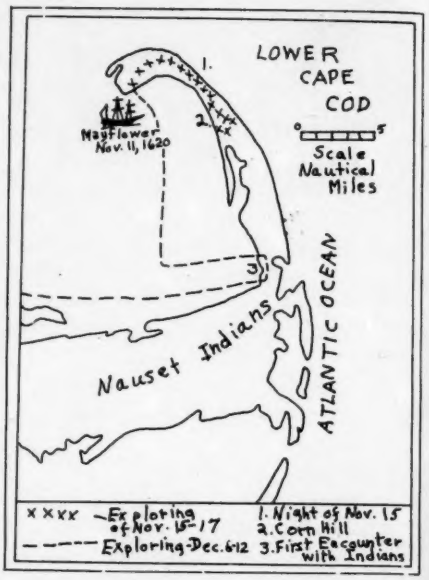


FIG. 1. Pupil adaptation of a map found in *Of Plymouth Plantation* written by William Bradford. (By permission of Alfred A. Knopf, Inc.)

may be able to do a high degree of understanding of historical maps in junior or senior high schools.

This particular group of children had done some foundation work in map skills in grades one and two. This consisted of field trips to notice land and water features, mapping of neighborhood areas, and learning about the use of simple symbols to represent places on a map. In grade three they had toured the country (Cape Cod) by bus, had gathered first hand information concerning the surface area, knew the shape of the peninsula because they had observed it from various heights, and were familiar with outline maps of the Cape.

In studying the problem of Pilgrims on the Cape during a unit on early explorers and settlers, two types of material were used: (1) the primary source material found in William Bradford's *History*—the edition used was edited by Samuel Eliot Morison and was taken di-

rectly from the original manuscript in the Massachusetts State Library; the edition differs from the original only in spelling and punctuation in Chapter X, pages 64 to 72; (2) a field trip to the lower Cape to observe first hand with the aim of drawing maps that would be correct geographically as well as historically. (It was not thought necessary at this early grade to consider how the land may have changed since the Pilgrim times, but some of the children brought up this fact anyway.)

Of course, the primary source material had to be read to the children, but this could be done with very little simplification. The children found it not only understandable but fascinating. It was possible for the teacher to get most children to understand that the information in the Bradford *History* was much to be preferred to any abridged material in their own books.

The land explored in this project has not been so built up as to seem improbable that it might have been quite rough and barren three hundred years ago. On the field trip it was possible to see from the shore, by alighting from the bus and climbing a convenient dune, the water routes made by the Mayflower and her shallop and to point out where the stopping places were. These places are carefully shown by markers. The unspoiled character of the lower Cape enabled the students to picture the scene very clearly and indicate on maps the routes of the explorations and such historical spots as Corn Hill and First Encounter Beach. This entire field trip took about two hours of school time.

Many of the children in the class had been to Plymouth to see the replica of the Mayflower, the "Plimoth Plantation," and the articles in the museum. For the rest of the class some excellent colored slides, which are obtainable in Plymouth, were shown and discussed in class.

At the conclusion of this teaching, the following skills were introduced or developed: (1) Use of primary sources, (2) Map making from actual observation plus primary sources, and (3) Using symbols and simple scales on maps.

In addition, a very strong realization developed that history is about real people and happenings and takes place in certain definite settings, at certain definite times, and under certain geographical conditions.

It is, of course, neither possible nor practical to extend this actual visiting of historical scenes, but it seems like a necessary foundation for the beginner in historical map work.

A fifth grade child studying the history of the American Revolutionary War made a large copy of a map (Fig. 2) from an excellent source book[2] and gave an explanation of the Battle of Bunker Hill. He showed a clear understanding of distance and direction as well as a realization of the situation and the actual problems of the patriots trying to get Boston evacuated by the British.

From a geographic viewpoint, it would have been pointless for the pupil to visit the Boston area, for the region has undergone a tremendous change since Washington's era. Therefore children will need to learn many things vicariously through old maps. This feeling for actual distance, direction, and time needs to be developed continually throughout the junior and senior high schools from both old and new maps. It is useless to teach about meridians or to use various projections of maps if the class members do not have a background for comprehending such ideas. It is increasingly important in these times when students are trying to prepare for the space age of the future that they first have as their "launching

[2] Colonel Vincent J. Esposito, *The West Point Atlas of American Wars,* Vol. 1, Frederick A. Praeger, Inc., New York, 1959 (Map 4). By permission of Frederick A. Praeger, Inc.

FIG. 2. Pupil adaptation of a map found in Colonel Vincent J. Esposito's *The West Point Atlas of American Wars*. (By permission of Frederick A. Praeger, Inc.)

pad" a firm foundation built upon a comprehension of the past which can be secured from history if properly taught in a physical environment.

Correlated Use of Maps

We need to develop a feeling of security gained from a belief in the continuity of the human race and its progress. To do this teachers need to depict history in its physical geographic setting by constantly referring to the known. A high school pupil, for example, studying about boundary changes and wars caused by boundary disputes, can gain an understanding of the problem through visiting his county court house and reading about land court battles which are near his home and consequently more real. He will be amazed at the boundary problems still existing in his own area. He can visit the areas in dispute. Reading about early land deeds with the bounds laid from a hollow tree to an ancient well will illustrate such points as: (1) the inaccuracies in surveying in early times; (2) the difficulties in finding complete and dependable records to study; (3) the need to check sources; (4) the misunderstandings that have led to battles over boundaries; and (5) the history of how map making and surveying equipment and methods have changed over the years. Maps and sketches help pupils reconstruct and visualize history. They help pupils think historically and rely less on memorization.

In addition to using the near-at-hand to broaden understanding there should be more team work among instructors of the same students. If teachers were aware of the skill a colleague is attempting to build, they might stress it also and this might result in enough transfer to make this skill more permanently useable. For example, the eighth grade English teacher enjoying *Treasure Island* with her class might help the social studies teacher develop the skill of drawing a map from printed material. A pupil who can construct an imaginary map from such prose as:

> . . . It was about nine miles long and five across, shaped, you might say, like a fat dragon standing up, and had two fine land-locked harbours, and a hill in the centre part marked 'Spy Glass.' . . .

can also reconstruct explorers' routes from printed logs. Many students will find this an exciting skill and will not only develop ability to construct historical maps but will also gain in developing their critical and analytical skills.

Conclusion

This type of map teaching takes time and the social studies teacher wishing to do a superior job is blocked by two obstacles. (1) In the middle grades and high schools the texts condense voluminous

material into summaries and ready-made generalizations and there is apt to be too little source material available to counteract this. (2) The teacher is pressured by courses of study or coming examinations to cover informational ground rapidly, however perfunctorily. There seems to be no time for pupils and teacher to think through history together. Until the development of skills, understandings, and attitudes takes precedent over sheer memorization of facts, this will not improve. In an age where food and reading are pre-digested for us, it should be a constant battle for the teacher of the humanities to try to develop thinking citizens.

THE NATIONAL COUNCIL AT WORK

Building a Stronger NCGE

The historian James Harvey Robinson once stated that a scientific organization has the responsibility to go beyond the forwarding of research. It should assume the ". . . further responsibility . . . of cultivating and spreading an appreciation of our best knowledge of man and his world among those now indifferent or actively hostile to it." (See James Harvey Robinson, *The Humanizing of Knowledge*, New York, 1926, ix.)

Since its beginning almost 50 years ago, the NCGE has accepted this "further responsibility." Its accomplishments in geographic education have been noteworthy; its present activities and plans are commendable. Yet, even in a day of unparalleled interest in the earth, geographic education languishes in many parts of our country. This presents us with the challenge to make great strides forward in geographic education. Unless we do, geography may face the prospect of a prolonged eclipse as a subject for study in our schools.

How can we strengthen geographic education? How can we build a greater NCGE? This is, indeed, one question and one challenge. Let me set forth a few suggestions along rather broad lines:

1. *Work to improve the teaching of geography of all levels.* That which goes on in the geography classroom provides the ultimate criterion for evaluating geography as a subject for study in school and college. Better teaching presupposes better prepared teachers, better instructional materials and equipment, and greater dedication.
2. *Support "geographic education" as a part of "education" generally.* The unique qualities of geography do not lie in the principles by which students are led to understand and like it. We promote geographic education as we contribute to improvement in all areas of education. We do not gain for geography by attacking educators or by joining the chorus of those who can find only weaknesses in our American schools.
3. *Welcome the "research" geographer as a contributor to geographic education.* Even as the teacher indirectly promotes research when he encourages good students to become geographers, the researcher supports geographic education as he uncovers new facts about our earth or helps to give geographic inquiry a firmer philosophical footing. No clear line of division exists between the worker in "geographic education" and "geographic research," and we must not try to draw one.
4. *Support the program of the NCGE.* I dare state boldly that all persons concerned with geographic education should support the NCGE. It is the only national organization in our country that is devoted exclusively to geographic education. Here is how you can support the program of NCGE: You can become a member if you are not one already. You can consider becoming a contributing member if you are not one already. You can share your useful experiences by publication in the JOURNAL OF GEOGRAPHY or by filling a place on the program at the annual meeting of NCGE. You can encourage student subscription to the JOURNAL and student attendance at the annual meetings.

There is room for many and diverse workers in the vineyard of geographic education. And perhaps there is a task that you can perform better than anyone else.

JEWELL PHELPS,
First Vice-president

George Peabody College
Nashville, Tennessee

Dr. Wallace R. McConnell
1881-1960

Wallace R. McConnell was born at Mt. Sterling, Illinois, on October 4, 1881. He received his bachelor's degree from the University of Illinois in 1912. He was Professor of Geography at the State Teachers College, Plattesville, Wisconsin, from 1914 to 1917.

In 1917 he received his master's degree from the University of Wisconsin. From there he went to Miami University, Oxford, Ohio, as Professor of Geography and Chairman of the Department—a position which he held until his retirement in 1952.

In 1923 he interrupted his career at Miami to go to Clark University to work on a Ph.D. In 1925 he received his doctoral degree and returned to Miami University.

His off-campus work included a teaching fellowship at Clark University in 1924 and summer school teaching at Cornell College in 1931, the University of Maine in 1951 and 1952, and extension courses in Dayton and Cincinnati. For four years, 1929 to 1933, he gave a series of geography programs on the Ohio School of the Air, over radio station WLW. Its purpose was to supplement classroom teaching.

Wallace R. McConnell's great desire for an education and his love for teaching overcame many obstacles. He was the youngest of four children. His father died when he was eleven years old. In order to help support the family and to continue his education, he had to work hard and at various jobs: town clerk, farm laborer, and a farm machinery salesman. After getting a teacher's certificate in 1908, he taught in the public schools and county normal schools. Thus, a pattern of work, study and teaching enabled him to finally obtain the Ph.D. in 1925.

Professor McConnell's career in geographic education consisted mainly of teaching and writing. He was a popular lecturer and author and was in demand as a speaker in the areas of education, geography, and agriculture. His popularity as a lecturer to teachers was due to the fact, it is said, that he not only gave them information but also illustrated his points with anecdotes gathered from his own early years as a public school teacher and his wide experience. He understood their problems. He wrote an excellent series of elementary geography texts which were widely used in the American public schools. Some of his books were translated and published for use in foreign countries. He was a frequent contributor to scientific and professional magazines. Among his contributions to THE JOURNAL OF GEOGRAPHY were, "Problems of Instruction in Geography" and "Switzerland and Austria—A Study in the Use of Natural Environment." He edited *Appleton's Modern School Atlas* and wrote "The Story of Ohio" for the 1947 edition of the *World Book Encyclopedia.*

Professor McConnell was president of the National Council of Geography Teachers (NCGE) in 1924-25. He was an outstanding instructor—interesting, stimulating, and thorough. His geography program on the Ohio School of the Air (WLW, Cincinnati) was ranked by several hundred teachers and principals as the best of the early programs. He is remembered and revered by thousands of former students as their favorite teacher.

ZOE A. THRALLS

University of Pittsburgh

GEOGRAPHICAL MATERIALS RECEIVED

Herrell De Graff. **Beef, Production and Distribution.** The University of Oklahoma Press, University of Oklahoma, Norman, Oklahoma, 1960. xx and 250 pages with index. $5.00.

John C. Caldwell and Elsie F. Caldwell. **Our Neighbors in Japan.** The John Day Company, Inc., 210 Madison Avenue, New York City, 1960. 48 pages. $2.00. Ages 6-9.

Alice Marriott. **The First Comers, Indians of America's Dawn.** Junior Books Department, Longmans, Green and Co., Inc., 119 West 40th Street, New York 18, New York, 960. viii and 246 pages with index and general background information. $4.50.

Harry C. Rubicam, Jr. **Men At Work in the Mountain States.** G. P. Putnam's Sons, 210 Madison Avenue, New York, 1960. 128 pages. $3.00. Ages 8-12.

Harvey S. Perloff, Edgar S. Dunn, Jr., Eric E. Lampard, and Richard F. Muth. **Regions, Resources & Economic Growth.** Johns Hopkins Press, Homewood, Baltimore 18, Maryland, 1960. 716 pages with index, table of contents. $12.00.

John C. Caldwell. **Let's Visit Indonesia.** John Day Company, Inc., 210 Madison Avenue, New York, New York, 1960. 96 pages with index and table of contents. $2.95. Ages 8-12.

J. H. Hennings. **Elementary Map Interpretation.** Cambridge University Press, 32 East 57th Street, New York 22, New York, 1960. 62 pages plus 7 maps. Explanations based on maps of Nigeria, Ghana and Sierra Leone. $2.50.

Marie Halun Bloch. **Mountains on the Move.** Coward-McCann, Inc., 210 Madison Avenue, New York, New York, 1960. 96 pages with table of contents, map, index. $3.00. Ages: 10-Up.

Walter Havighurst, Editor. **Land of the Long Horizons.** Coward-McCann, Inc., 210 Madison Avenue, New York, New York, 1960. 437 pages with table of contents, introduction, and acknowledgements. $10.00.

George Kish. **Economic Atlas of The Soviet Union.** The University of Michigan Press, Ann Arbor, Michigan, 1960. 96 pages. $10.00.

Aviation Cartography. Library of Congress, Card Division, Washington 25, D.C., 1960. 245 pages. $1.75.

Manorama R. Modak. **The Land and the People of India.** J. B. Lippincott Company, East Washington Square, Philadelphia 5, Pennsylvania, 1960. 127 pages with illustrations and one map. $2.95.

Christine Weston. **Ceylon.** Charles Scribner's Sons, 597 Fifth Avenue, New York 17, New York, 1960. 162 pages with photographs, index and map. $3.95.

Russell A. Brant and Richard M. DeLong. **Coal Resources of Ohio.** Department of Natural Resources, Division of Geological Survey, 155 South Oval Drive, Ohio State University, Columbus 10, Ohio, 1960. 245 pages. $2.00.

George H. Denton. **Coal Resources of the Upper Part of The Monongahela Formation and the Dunkard Group in Ohio.** Department of Natural Resources, Division of Geological Survey, 155 South Oval Drive, Ohio State University, Columbus 10, Ohio, 1960. 50 pages. $.50.

Educators Guide to Free Science Materials. Educators Progress Service, Randolph, Wisconsin, 1960. 298 pages. $6.25.

Henry Field. **North Arabian Desert Archaeological Survey, 1925-50.** Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge 38, Massachusetts, 1960. 224 pages and 85 illustrations. $8.25.

Sydney E. Fletcher. **The American Indian In Words and Pictures.** Grosset & Dunlap, New York 10, New York, 1960. 152 pages including index, table of contents, and illustrations. $2.95.

Walter Isard. **Methods of Regional Analysis.** John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, New York, 1960. 784 pages including preface, table of contents, index, and diagrams. $9.50.

Lloyd A. Brown. **Map Making: The Art That Became A Science.** Little Brown and Company, Boston, Massachusetts, 1960. 217 pages including illustrations and index. $4.75.

Ralph and Molly Izzard. **A Walk in the Mountains, A Family's Trip Through the High Lebanon.** David McKay Company, Inc., 119 West 40th Street, New York 18, New York, 1960. 253 pages. $4.95.

Calvin I. Kephart, editor. **Races of Mankind, Their Origin and Migration.** Philosophical Library, Inc. 15 East Fortieth Street, New York 16, New York, 1960. 566 pages. $6.00.

William Bixby. **The Impossible Journey of Sir Ernest Shackleton.** Atlantic Monthly Press Book, Little, Brown and Company, Boston, Massachusetts, 1960. 207 pages. $3.00.

Leonard S. Kenworthy. **Profile of Nigeria.** Doubleday & Company, Inc., 575 Madison Avenue, New York 22, New York, 1960. 96 pages with index and photographs. $2.50.

Chauncy D. Harris and Jerome D. Fellmann. **International List of Geographic Serials.** University of Chicago, Department of Geography Research Paper #63, 1960. 194 pages. $4.00.

John C. Caldwell. **Let's Visit Ceylon.** The John Day Company, Inc., 210 Madison Avenue, New York, New York, 1960. 96 pages with index, table of contents, and photographs. $2.95. Age level: 8-12.

Barnett D. Laschever. **Getting to Know India.** Coward-McCann, Inc., 210 Madison Avenue, New York City, New York, 1960. 64 pages with illustrations, $2.50. Ages 8-12.

Nicholas Polunin. **Introduction to Plant Geography.** McGraw-Hill Book Company, 330 West 42nd Street, New York 36, New York, 1960. 636 pages with index, table of contents, maps, illustrations. $10.00.

Frank Gaynor. **Aerospace Dictionary.** Philosophical Library, Inc., 15 East 40th Street, New York 16, New York, 1960. 260 pages. Introduction by Wernher Von Braun, "The 'Why' of Space Travel." $6.00.

Paul Rivet. **Maya Cities.** G. P. Putnam's Sons, 210 Madison Avenue, New York, 1960. 234 pages including table of contents, index and several fold-out maps. $5.95.

Atlas of the Arab World. St. Martin's Press, Inc., 175 Fifth Avenue, New York 10, New York, 1960. Introduction by C. F. Beckingham. 42 pages plus table of contents and index. $9.00.

Theodore A. Ashford. **From Atoms to Stars.** Holt, Rinehart & Winston, 383 Madison Avenue, New York 17, New York, 1960. 645 pages with ix, table of contents and index. $8.50.

Frank Forrester. **Exploring the Air Ocean.** G. P. Putnam's Sons, 210 Madison Avenue, New York, 1960. 70 pages with table of contents. Illustrated by Robert Eggers. $2.75. Ages: 8-12.

Charles H. Hapgood. **Great Mysteries of the Earth.** G. P. Putnam's Sons, 210 Madison Avenue, New York, 1960. 72 pages with table of contents. Illustrated by Robert Eggers. $2.75. Ages: 8-12.

Arthur N. Strahler. **Physical Geography.** Second Edition. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, New York, 1960. 534 pages including preface, table of contents, introduction and index. $7.50.

Teaching Geography in Junior Schools. The Geographical Association, The Park Branch Library, Duke Street, Sheffield 2, Great Britain, 1959. 46 pages plus advertising. $.50.

Roy D. Hockensmith. **Water and Agriculture.** American Association for the Advancement of Science, 1515 Massachusetts Avenue, N.W., Washington 5, D.C., 1960. 206 pages with index and 21 illustrations. $5.00. (Prepaid to AAAS Members $4.50.)

Stephen H. Spurr. **Photogrammetry and Photo-Interpretation.** The Ronald Press Company, New York 10, New York, 1960. 472 pages with table of contents, index, illustrations. $12.00.

Dorothy Charques. **The Nunnery.** Coward-McCann, Inc., 210 Madison Avenue, New York, 1960. 354 pages with index, table of contents and acknowledgments. $4.50.

Martha Norburn Allen. **Ashville and Land of the Sky.** Heritage House Publishers, 5308 Monroe Road, Charlotte 5, North Carolina, 1960. 208 pages with table of contents, index, and photographs. $3.95.

C. B. Fawcett. **Provinces of England. A Study of Some Geographical Aspects of Devolution.** The Humanities Press, Inc., 303 Fourth Avenue, New York 10, New York, 1960. 192 pages with table of contents, list of illustrations, index and introduction by W. G. East and S. W. Wooldridge. $4.50.

Motoring in Mexico. Pan American Union, Washington, D.C., 1960. 64 pages with table of contents and index. $.25.

Marion Clawson, R. Brunell Held and Charles H. Stoddard. **Land for the Future.** Johns Hopkins Press, Homewood, Baltimore 18, Maryland, 1960. 570 pages with index, table of contents, list of tables and figures. $8.50.

Educator's Guide to Free Films, 20th Annual Edition. Educators Progress Service, Randolph, Wisconsin, 1960. 639 pages. $9.00.

B. W. Sparks. **Geomorphology.** Longmans, Green & Co., Inc., 119 West 40th Street, New York 18, New York, 1960. 371 pages with table of contents, list of text figures, and index. $7.75.

Peter Matthiessen. **Wildlife in America.** The Viking Press, Inc., 625 Madison Avenue, New York, 1960. Illustrated by Bob Hines. 304 pages with 8 color plates, 16 pages of photography, more than 100 line drawings, and index. $10.00.

Kevin Lynch. **The Image of the City.** Harvard University Press, Cambridge, Massachusetts, 1960. 194 pages with table of contents, index and illustrations. $5.50.

Edward Everett Dale. **The Range Cattle Industry, Ranching on the Great Plains from 1865 to 1925.** University of Oklahoma Press, Norman, Oklahoma, 1960. 207 pages with table of contents, index, illustrations, maps, and bibliography. $4.00.

Educators Guide to Free Filmstrips, 1960. Educators Progress Service, Randolph, Wisconsin, 1960. 163 pages. $6.00.

Charles Lagus. **Operation Noah.** Coward-McCann, Inc., 210 Madison Avenue, New York, New York, 1960. 176 pages. $4.00. Young Adult.

Otis D. Duncan, William Richard Scott, Stanley Lieberson, Beverly D. Duncan, Hal H. Winsborough. **Metropolis and Region.** The Johns Hopkins Press, Homewood, Baltimore 18, Maryland, 1960. 587 pages. $8.50.

G. H. Dury. **The Face of the Earth.** Penguin Books Inc., 3300 Clipper Mill Road, Baltimore 11, Maryland, 1960. 223 pages. Paperback. $1.25.

A. W. Haslett and John St. John, editors. **Science Survey 1.** The Macmillan Company, 60 Fifth Avenue, New York 11, New York, 1960. 360 pages with table of contents, index, illustrations. Foreword by Sir George Thomson. $5.75.

Robert G. Sutton. **Stratigraphy of the Naples Group (Late Devonian) in Western New York.** New York State Museum and Science Service, Bulletin Number 380, The University of the State of New York, The State Education Department, Albany, New York, 1960. 56 pages.

William A. Ritchie and Don W. Dragoo. **The Eastern Dispersal of Adena.** New York State Museum and Science Service, Bulletin Number 379, The University of the State of New York, the State Education Department, Albany, New York. 80 pages. $1.25.

O. G. Sutton. **Understanding Weather.** Penguin Books Inc., 3300 Clipper Mill Road, Baltimore 11, Maryland, 1960. 215 pages. paperback. $.95.

L. Dudley Stamp and S. Carter Gilmour. **Chisholm's Handbook of Commercial Geography.** Longmans, Green and Co., Inc., 119 West 40th Street, New York 18, New York, 1960. 915 pages. $16.50.

Bryon Ashbaugh and Muriel Beuschlein. **Things to do in Science and Conservation.** The Interstate Printers and Publishers, Inc., Danville, Illinois, 1960. 163 pages. $2.50.

Oxford Regional Economics Atlas, The Middle East and North Africa. Oxford University Press, 417 Fifth Avenue, New York 16, New York, 1960. 135 pages. $10.00 clothbound Trade ed.; $5.95 paperbound College ed.

Elementary Teachers Guide to Free Curriculum Materials, 1960. Educators Progress Service, Randolph, Wisconsin 1960. 311 pages plus 7 teaching units for use with free materials. $7.50.

BOOK REVIEWS

G. Taylor, D. Seiveright, and Trevor Lloyd. **Canada and Her Neighbours.** Ginn and Company, Toronto, 1959 (revised). 248 pages.

The earlier edition of *Canada and Her Neighbours* was popular in several provincial school systems where it was used at Grade 5 or 6 level. The present revision is largely the work of Dr. Trevor Lloyd of McGill University. The revised edition maintains the same high standard of production and information and should continue to be a useful and interesting book for Canadian pupils and for students in other countries who want to understand more about Canada.

The book is an excellent example of good production. There are several color maps and color photographs, as well as clear and simple black and white maps. Pictures are large and the titles have been well-written to call attention to information of geographical significance. There are pictures or maps on every page, so that even parents probably enjoy browsing through this book!

J. LEWIS ROBINSON
University of British Columbia

T. A. Irvine. **The Ice Was All Between.** Longmans, Green & Company, Inc., 55th Avenue, New York, 1959. 216 pages with table of contents, foreword, author's note and photographs. $4.50.

This book relates the story of the transit of the Northwest Passage by the Canadian ice breaker *Labrador* in the summer of 1954. From the commissioning ceremonies at Halifax to the resupply exercises at Craig Harbour and Alexandra Fiord, this is the story of a new ship and an untried crew getting acquainted with arctic waters, icebergs and fog. It's also a story of seamen getting acquainted with scientists, for *Labrador* was a floating laboratory and survey ship as well as an ice breaker and supply ship for isolated Royal Canadian Mounted Police Stations. There is also an episode of neophytes meeting the seasoned explorer, the veteran viewing with amazement a powerful ship with modern equipment and instrumentation—as RCMP Superintendent Larsen who navigated the Northwest Passage both ways, east to west and west to east in the *St. Roch*, came aboard.

Resupply duties completed, *Labrador* conducted survey and oceanographic soundings in Lancaster Sound and Barrow Strait. The ship then fights ice to Dealy Island to rendezvous with the U. S. Navy's *Burton Island*, which has conducted a similar survey from the west. After joining the U. S. Coast Guard *Northwind* off Victoria Island, the three ships pass through Prince of Wales Strait to the Arctic Ocean. *Labrador* returns via the west coast and the Panama Canal.

If the reader is not familiar with the history of exploration in the American Arctic, he will benefit from checking the outline of voyages in search of the Northwest Passage at the end of the book, *before* he reads the story.

The book is well written, but the author apparently omitted many details which probably would have improved the story. In many instances the reader is left in doubt about the outcome of an episode. The book also would have been more timely if published before 1957, for it relates the beginning of current scientific work in the Arctic before IGY, drifting stations and under-ice submarines.

LOUIS O. QUAM

Office of Naval Research
Department of the Navy

Howard J. Critchfield. **General Climatology.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1960. xiii and 465 pages with illustrations, appendices, bibliography, index, and table of contents. Text edition $7.95; Trade edition $10.95.

This is a well-organized, non-mathematical treatment of weather and climate. Within the limits imposed by the non-technical treatment, this book presents a very comprehensive summary of the physical elements of weather and climate, climatic classification systems, and the relationships of weather and climate to plants, animals, and man.

Part one, treating the physical elements of weather and climate, follows the standard approach of presenting the nature and origin of the atmosphere, heat and temperature, pressure and winds, atmospheric moisture, air masses and storms, and weather forecasting. Part two, Climates of the World, summarizes the different systems of classification including Koppen and Thornthwaite, and then follows this with a discussion of world climatic areas based on the air masses which dominate each region. Subdivisions under each major climatic area follow the customary organization of world climates familiar to most geographers. The author recognizes the shortcomings of this type of climatic classification but justifies it by stating that "it is intended [only] to acquaint the student with the major climates of the earth and provide a minimum of departure for the terminology that he is likely to encounter in readings in geography, climatology, or other sciences dealing with world patterns of distribution."

Part three, Weather, Climate, and Life, undoubtedly is the major section which recommends this book and sets it apart from the usual treatment of weather and climate. Here, the author points out the significance of climate to life and economic activities, not as an afterthought, but as a major part of the book. Particularly welcome are his sections on Climate and Water Resources, Climate and Agriculture, and Climatic Change and Cycles.

This should serve well as a text in a survey course in weather and climate, as a supplement to a course in physical geography, or for beginning courses in a major sequence of meteorology and climatology provided supplemental materials in mathematical analysis and statistics are used.

WALLACE E. AKIN
Drake University

Philip I. Mitterling. **America in the Antarctic to 1840.** University of Illinois Press, Urbana, 1959. x and 201 pages, maps, annotated bibliography, index and table of contents. $5.00.

In the last 30 years a number of private papers pertaining to early American activity in the Antarctic have come to light, and the creation of the National Archives has made a vast amount of official records readily available to scholars. Most of the former and some of the latter have been dealt with in articles and monographs confined to specific voyages or limited areas. These published and unpublished materials have been reviewed and synthesized thoroughly by Dr. Mitterling. As a result, his concise summary is the best account yet published of American activity in the Antarctic for the period up to 1840, and his annotated bibliography is an excellent and handy evaluation of primary source material.

A historian, Dr. Mitterling emphasizes factors and events which motivated American activity in the Antarctic; therein lies his greatest contribution. For instance, only 24 pages are devoted to the operation of the U. S. Exploring Expedition, but 61 pages deal with its initiation and organization. The apparent imbalance is justifiable since much has been written on the former and relatively little on the latter. Nowhere have the controversies and mismanagement related to preparations for the Wilkes Expedition been so thoroughly dealt with. Nevertheless, geographers will be disappointed in the paucity of maps and in the limited attempt to interpret explorers' landfalls in terms of recent mapping of the coasts. In his summaries of earlier interpretation by others, however, Mitterling maintains an objectivity often lacking in the original.

Considering the amount of detail that had to be dealt with, it is not surprising that omissions and errors were committed. No mention is made of the first known crossing of the Antarctic Convergence by Americans in 1792-93 when the *Nancy* and the *Polly* of New Haven visited South Georgia. Mitterling accepts Lawrence Martin's erroneous interpretation of the "ship's day" (p. 40). The *Anawan* and *Seraph* did not meet off Long Island in 1829 as stated on page 97, but in May, 1830 off the coast of Chile. The *Anawan*, meanwhile, made an exploratory cruise west from the South Shetlands in company with the *Penguin*. The *Seraph* made a similar cruise alone.

KENNETH J. BERTRAND
Catholic University of America

Outstanding RONALD Books . . .

Photogrammetry and Photo-Interpretation

With a Section on Applications to Forestry

Stephen H. Spurr, *University of Michigan*

New! This book discusses and utilizes significant developments in the techniques of aerial photography, photogrammetry, and particularly in the growing art of photo-interpretation. Abundant illustrations include helpful line drawings, recent aerial photographs, and pictures of latest photographic materials and photogrammetric equipment. Second Edition of AERIAL PHOTOGRAPHS IN FORESTRY fully covers basic principles and methods; brings together specialized material on the use of aerial photography in vegetation mapping, forest inventory, and forest management. *"Excellent revision. . . ."*—CHARLES O. MINOR, Arizona State College. *"I am pleased at the great addition in both text and bibliography. . . ."*—HAROLD E. YOUNG, University of Maine. *2nd Ed., 1960. 472 pp.; 170 ills., tables.* $12

The Geological Evolution of North America

A Regional Approach to Historical Geology

Thomas H. Clark *and* Colin W. Stearn—*both McGill University*

A fresh approach to the study of historical geology. This basic textbook covers the continent's evolution in terms of its three major structural units: the Appalachian and Cordilleran geosynclines, the stable interior, and the Canadian Shield. Throughout, the connection between the structural behavior of the geosynclines, basins, and shelf areas, and the pattern of sediments deposited in them is stressed. Book includes valuable summaries of the plant and animal kingdoms, and a graphic presentation of the biotic groups mentioned in the text. *"Excellent . . . logical and comprehensive."* —R. SCHOLTEN, Pennsylvania State University. *"Stimulating book . . . well written."*—C. G. I. FRIEDLAENDER, Dalhousie University. *1960. 434 pp.; 287 ills., tables.* $7.50

Biogeography—An Ecological Perspective

Pierre Dansereau, *University of Montreal*

This pioneering study, based on worldwide field trips, provides a new synthesis of the environmental relationships of living organisms. Designed for senior and graduate courses in geography, botany, and ecology, it analyzes the components of the biogeographic community in terms of their historical setting, climatic tolerance, adjustment to habitat and one another, and their genetic makeup. Book applies uniform ecological principles to the study of plants and animals and their societies, achieving an integrated perspective which provides common ground for a penetrating interpretation of environmental complexes. *"Startling depths of insight and breadths of learning."*—THE PROFESSIONAL GEOGRAPHER. *"Clarity, precision, logical arrangement."*—SCIENCE. *1957. 394 pp.; 183 ills., tables.* $7.50

THE RONALD PRESS COMPANY

15 East 26th Street, New York 10, New York

AT BOOTH 316

AT THE NATIONAL COUNCIL FOR GEOGRAPHIC EDUCATION

November 25-26, 1960 • Cincinnati, Ohio • SEE the new

1960 HOMELANDS SERIES

GEOGRAPHY-CENTERED
SOCIAL STUDIES
TEXTBOOKS
FOR GRADES 4-9

by Haaby, Thurston, Hankins, and Southworth

Up-to-the-minute in every way!

- Latest maps in natural color relief, including the Polar Regions, Africa, Alaska, Hawaii, Latin America, etc.
- Current statistical information
- New full-color Kodachrome photos

Charles E. Merrill Books, Inc. and Iroquois Publishing Company, Inc.

1300 Alum Creek Drive, Columbus 16, Ohio

Ohio Representatives: CHARLES R. CLIPSON · C. J. ROBERTS · DALLAS PORTER

BOOK REVIEW

Jim Breetveld. **Getting to Know Brazil.** Coward-McCann Inc., New York, 1960. 64 pp. Illustrated by Donald Lambo. $2.50.

This is another title in the more than twenty "Getting to Know" books that describe various countries of the world for children. This one is intended to tell about Brazil and its people, starting with its wonderful new capital, Brasília, that "gleaming modern city of marble, glass, steel, and concrete that rises from a wind-swept wilderness in the middle of the country."

It would be difficult to imagine a more inept, uninformed, and misleading treatment of a great country. Perhaps to a newspaper man or an artist-illustrator it is not really important to locate Brasília correctly on a map—in this book the position given the new capital is not even close to its real position. Brazil is described in terms of vast rich lands, steaming jungles, amazing animals, and homeless Tupi-Guarani Indians wandering through the dense forests. The unwary reader learns that most of Brazil is crisscrossed (*sic.*) by a network of deep and wide rivers, navigable for steamships. The description of what a Brazilian family eats omits any suggestion that millions of people in that country are hungry and too poor to do anything about it. The drawings of Brazilians are incredible; to any one who knows what Brazil is really like the picture of a rubber gatherer in the Amazon wearing a tropical helmet and high leather boots is a shocker. But even more shocking are his two children, a boy and a girl, dressed like school children in the United States. And in Brazil the only soccer players who wear shoes are the professionals. Even the guide to Portuguese pronunciation (pp. 60-63) is filled with errors.

Unfortunately the book is attractively printed and the writing is excellent for children. If you listen carefully you may hear the publishers, the author, and the illustrator joining in the chorus: "what difference does it make if some of the descriptions are not quite accurate—who cares?"

PRESTON E. JAMES

Syracuse University

Macmillan Introduces . . .

CULTURE WORLDS, *Brief Edition*

By RICHARD JOEL RUSSELL
and FRED BOWERMAN KNIFFEN,
Both of Louisiana State University
Brief Edition prepared by
EVELYN L. PRUITT,
Office of Naval Research

Designed primarily for one-semester courses in introductory geography, this edition, like the original, is based on the theory that man's alterations of his physical environment reflect his cultural traits. The authors differentiate seven basic geographical worlds, describing their physical characteristics and the ways in which cultural factors have influenced their development.

The compactness of the new brief edition has been achieved by omitting much non-vital detail, except in the chapter on the American World, while extensive rewriting ensures a balanced presentation. The revision takes into account the latest available information in the field.

Many new maps, showing clearly all places mentioned in the text, have also been included.

Coming, Spring 1961

Currently Available . .

ECONOMIC GEOGRAPHY, *Second Edition*

By CLARENCE FIELDEN JONES,
Northwestern University,
and GORDON G. DARKENWALD,
Hunter College

1954, 612 pp., Ill., $7.25

"The writers have adopted the occupational approach to the subject and have paid special attention to the relation between physical factors and economic conditions. . . . a first-class book in its field."—Soil Science.

The Macmillan Company 60 Fifth Avenue, New York 11, N.Y.

Mary Viola Phillips. **World Geography For High Schools.** The John C. Winston Company, 1010 Arch Street, Philadelphia, Pennsylvania, 1960. viii and 540 pages with maps, illustrations, index, and statistical appendix. First edition. $5.20.

Mary Viola Phillips had taught geography at New Kensington High School in New Kensington, Pennsylvania, for many years before joining the staff at the University of Pittsburgh. This experience, plus her excellent background in the field of geography itself, makes her eminently qualified as an author of geography textbooks at the high school level. These qualifications have enabled her to present the material in a fashion that is interesting, challenging, and easily assimilated by the average high school student.

The organization of this book is excellent. It establishes a firm foundation in the use of the tools of geography and such environmental factors as weather, climate, ocean currents, topography, and natural resources. Each of these factors is discussed in a manner designed to impress the reader with the effect of that factor on population distribution. After having established this foundation the book proceeds with a systematic study of the geography of the world. The author uses a cultural approach showing how man has constructed a civilization within the framework of his natural environment; or, where applicable, has altered the natural environment to enable certain cultural activities. The book progresses from the study of North America to South America, Europe, Africa, Asia, the Pacific Regions, and the Polar Regions. Russia is included in the European Unit due to the overwhelming importance of European Russia as opposed to Siberia and the Far East. In every instance the physical geography is discussed first and is followed by a discussion of the cultural activities. In most cases the country is studied by physiographic regions. The material for each country is both accurate and up-to-date.

The book is amply illustrated with photographs pertinent to the material. Each photograph is captioned and most of them carry questions designed to promote class discussion. At the end of each chapter questions are posed, suggestions for projects are made, and a reading list is presented. The book also contains a number of maps and charts covering every conceivable phase of geography. There are both world maps and regional maps, each type utilizing many different projections. Unfortunately some of the maps are too small to be as effective as they could be. The appendix is excellent. It contains statistics on area, population, cropland, mineral resources. and temperature and rainfall data for 57 selected stations.

In summation, the reviewer found this book to be well organized, amply and interestingly illustrated, and containing many useful tools of geography. Mary Viola Phillips has indeed done a commendable job.

WILLIAM J. RAMPON

Central State College
Edmond, Oklahoma

Charles R. Joy. **Desert Caravans, The Challenge of the Changing Sahara.** Coward McCann, New York, 1960. 121 pp. $2.75.

The author has written this book primarily for children of the elementary grades with large print, short sentences, 74 clear photographs—most of which are page or half page in size—4 good maps, a glossary. place names, with accented syllables, and an index.

He starts out to correct several misconceptions about the desert and then describes the anthropology, geology, climate, vegetation, soils, animal life, human history and modern development of the Sahara in a style and in a language that children can understand.

The writer seems to have achieved his purpose stated in the first part of the book. "This book is a report on hope in the desert, where old and new ways of life are meeting. It is a chronicle of human courage and skills pitted against barren wastes. As you become acquainted with the changing Sahara. you can decide who you think will win in the end—nature or man."

EARL B. SHAW

Assumption College
Worcester, Massachusetts

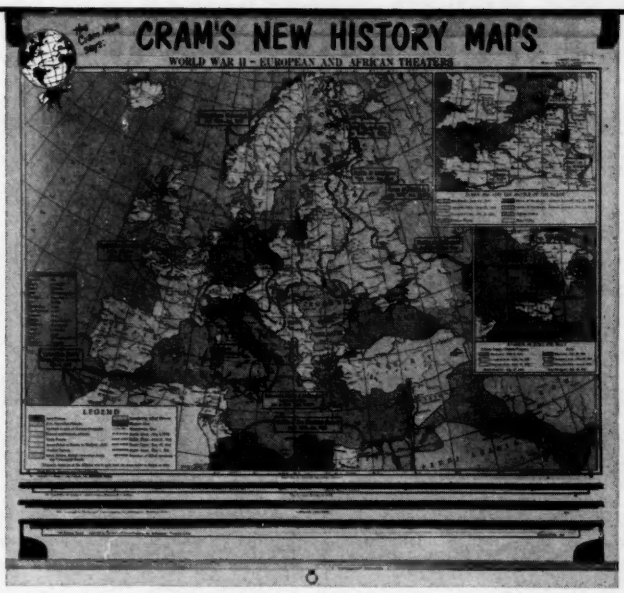
Jean Speiser. **River in the Dark.** The John Day Company, New York, 1960. 185 pages. $3.50.

This book is one of the "Your Fair Land" series on our National Parks and written for young readers of 12 years up. However, adults, especially educators, will find the book useful and interesting reading. The inspiration for its title comes from famous Echo River, a tributary to the Green River of Kentucky which flows through Mammoth Cave 350 feet below the plateau surface above the cave.

The book is essentially a popular geography of the park romanticized by plausible episodes associated with the lives of people closely related to the park, such as the Ranger Service, scientists, and park neighbors who have private caves on exhibition. Most of the fascinating aspects of Mammoth Cave and the park area are skillfully woven into the story. The writer shows thorough familiarity with the subject and gives a very good picture of the major cave attractions. Also, the writer emphasizes the conservation aspect of these attractive natural resources thoughout the book. The book will be useful in school libraries. It can be read at a single sitting since it is only 185 pages and is sufficiently interesting. It has one useful map.

J. R. SCHWENDEMAN

University of Kentucky



ONE OF TWO WORLD WAR II MAPS—Just off the press. Two complete sets—Re-edited, printed from new plates, beautiful fade proof colors. These Cram History Maps present important events complete and accurate without devoting valuable space to unimportant detail. All maps have been re-edited by Dr. T. D. Clark, Ph.D., Head of History Dept., University of Kentucky, a nationally recognized historian.

18 HISTORY MAPS ON ONE SPRING ROLLER

WORLD HISTORY

1002 Ancient Empires
1004 Campaigns and Empire of Alexander
1007 The Mediterranean World—264 B.C.
1010 Rise and Growth of Christianity to 325 A.D.
1011 General Reference Map of Roman World
1012 The Migrations to 486 A.D.
1017 Europe at the Death of Charlemagne 814 A.D.
1018 Crusading Europe 1095-1291
1023 Voyages and Discoveries to 1610
1025 Europe and the Near East 1740
1027 Europe under Napoleon 1810
1028 Europe after the Congress of Vienna 1815
1032 Europe after the Congress of Berlin 1878
1033 The Expansion of the Russian Empire 1613-1914
1038 Europe after the Treaties of 1919-1924
1043 Europe, September 1, 1938
1045 World War II—European and African Theaters
1046 World War II—Pacific Ocean Theater

Set of 18 Maps

No. CHW18—ZMB—$97.00

AMERICAN HISTORY

502 Indians During Early Exploration.
503 Voyages and Discoveries to 1610.
506 Early Grants and Origin of 13 Colonies.
507 Early Claims and Possessions 1754-1763.
508 European Settlements to about 1760.
510 Western Land Claims and the Ordinance of 1787
511 The United States in 1790 and about 1802.
512 The United States in 1810.
513 The United States in 1830.
516 The Mexican War and Compromise of 1850.
517 Territorial Expansion to 1854.
518 The United States in 1861.
519 The Civil War 1861-1865.
521 Transportation, Early Railroad Period 1840-80.
522 Transportation, Principal Railroads since 1880.
529 The World War—Western Area.
533 United States.
534 Political World.

Set of 18 Maps

No. CHA18—ZMB—$97.00

Send for Circular No. 21, Listing 82 History Maps in your choice of mountings.

School and Library Division

GEORGE F. CRAM CO. 730 E. WASHINGTON STREET INDIANAPOLIS 6, INDIANA

WEATHER INSTRUMENTS

Amateur and
Weather Bureau Types

Complete installations for
schools from $59.50 to $2895.00
Write for catalog

SCIENCE ASSOCIATES

Instruments/Weather • Astronomy/Teaching Aids

194 NASSAU STREET P.O. BOX 216 PRINCETON, N.J.

Looking for a PUBLISHER?

If you have completed a book-length manuscript, you may be interested in our special publishing plan. Under this program, many teachers, doctors, executives and scholars have seen their work published, promoted and marketed on a dignified, professional basis. All subjects considered—geography, history, fiction, poetry, etc. Send for our free 40-page illustrated brochure today. Ask for Booklet JG.

VANTAGE PRESS, INC.
120 West 31st St., New York 1, N.Y.
In Calif.: 6253 Hollywood Blvd., L.A.
In Wash., D.C.: 1010 Vermont Ave., N.W.

STUDENT MEMBERSHIP

A *Student membership* has been created. Cost to the student is $3.00 for one year. The student membership must be certified by the teacher and then mailed directly to the Secretary, National Council for Geographic Education, Department of Geography, University of Texas, Austin, Texas. The *Journal of Geography* will be mailed directly to the student at the address he gives.

BOOK REVIEW

Oxford Economic Atlas of the World. Oxford University Press, London, England, 1955. 288 pages, 96 pages of maps, 144 pages of economic statistics, introductory material, 2 appendices, and index. $6.75.

This excellent compilation of economic material should be an indispensable reference work for geographers, economists, historians, and anyone dealing with the production, consumption, and movement of the world's resources and products. The material is presented logically and understandably.

The work is divided into an introductory section presenting world maps of soil, vegetation, relief, and climate. The second unit contains ten subsections: cereals; fruit; beverages, tobacco, sugar and forest products; vegetable oils; livestock and products; fibers and textiles; fuel and power; iron, steel, and ferro-alloys; nonferrous metals and other minerals; and industries. In each subsection there is an article describing the items mapped. There follows a concise statistical section dealing with the world's production, exports, imports, and percentage of total trade by nation. Each section includes a map showing world distribution of items produced and statistics for key producers. The maps give a vivid visual picture of the item considered. The concluding map section is a summary dealing with mineral industries, agriculture, communications, population, international power blocs, and a series of continental atlas maps.

The final section is a complete summary by nation of all important economic data. This last section alone is worth the price of the atlas. The only statistic missing is a national breakdown of merchant marine by tonnage and number of ships. This, however, is a minor omission.

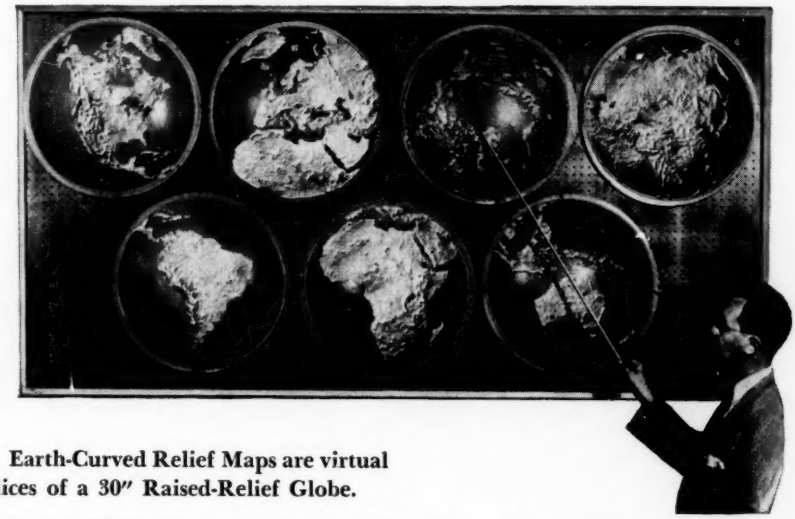
The vast amount of material presented in both mapped and statistical manner plus accuracy and attention to detail makes this one of the most important tools for teacher and researcher.

ROBERT D. LORING

DePauw University
Greencastle, Indiana

ACTUAL RAISED-RELIEF GLOBE SECTIONS

Touch and feel the mountains, lakes and rivers!



Earth-Curved Relief Maps are virtual slices of a 30″ Raised-Relief Globe.

Each is 23″ in diameter, 6″ deep and weighs only 14 ounces.

A flat edge with eyelet enables the map to be hung as a plaque or laid flat on the desk. The maps are formed in high relief of tough washable plastic with seas in turquoise, land in ochre and highlands in sepia.

Teachers find Earth-Curved maps are ideal activity tools. Poster colors, crayons, pencils and ball point pens may be applied and removed easily.

THE SEVEN MAPS:

EC2 Europe
EC3 Asia
EC4 Africa
EC5 North America
EC6 South America
EC10 Australia
EC57 No. Polar Area

Each **$9.95**

EC7 Set of seven

Only **$63.00**

Write for circular G33

DENOYER-GEPPERT COMPANY

Maps • Globes • Charts • Models

5235 Ravenswood Avenue **Chicago 40, Illinois**

Rand McNally announces publication of a new edition, the 11th, of

GOODE'S WORLD ATLAS

edited by E. B. ESPENSHADE, JR.

This new edition is by far the most sweeping ever undertaken in the history of *Goode's.*

All regional maps (from page 65) have been completely re drafted and redesigned, incorporating these changes:

1 A completely new treatment of surface configuration, retaining the advantages of a layer tint system.

2 A completely new color and type design.

3 Newly drafted coast and drainage lines.

4 Completely revised place names.

New plates reflect the growing importance of the U.S.S.R., China, India, and South America. Many insets of important regions and urbanized areas have been added.

Twenty-five newly compiled special maps depicting density, land use, vegetation, rainfall, economic development and land forms have been added.

Publication: Summer, 1960 *$7.50 list*

College Department

RAND McNALLY

P. O. Box 7600 Chicago 80, Illinois

Do Your Part—Buy From Our Advertisers